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• THE • ARCHITECTURAL RECORD

AN ILLUSTRATED MONTHLY MAGAZINE OF ARCHITECTURE
AND THE ALLIED ARTS AND CRAFTS.

INDEX-VOLUME XXXIII

JANUARY—JUNE

1913

PUBLISHED BY

THE ARCHITECTURAL RECORD CO.

115-119 WEST 40TH ST., NEW YORK CITY

841 MONADNOCK BUILDING, CHICAGO
BESSEMER BUILDING, PITTSBURGH

1211 ARCH ST., PHILADELPHIA
114 FEDERAL ST., BOSTON



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THE ARCHITECTURAL RECORD

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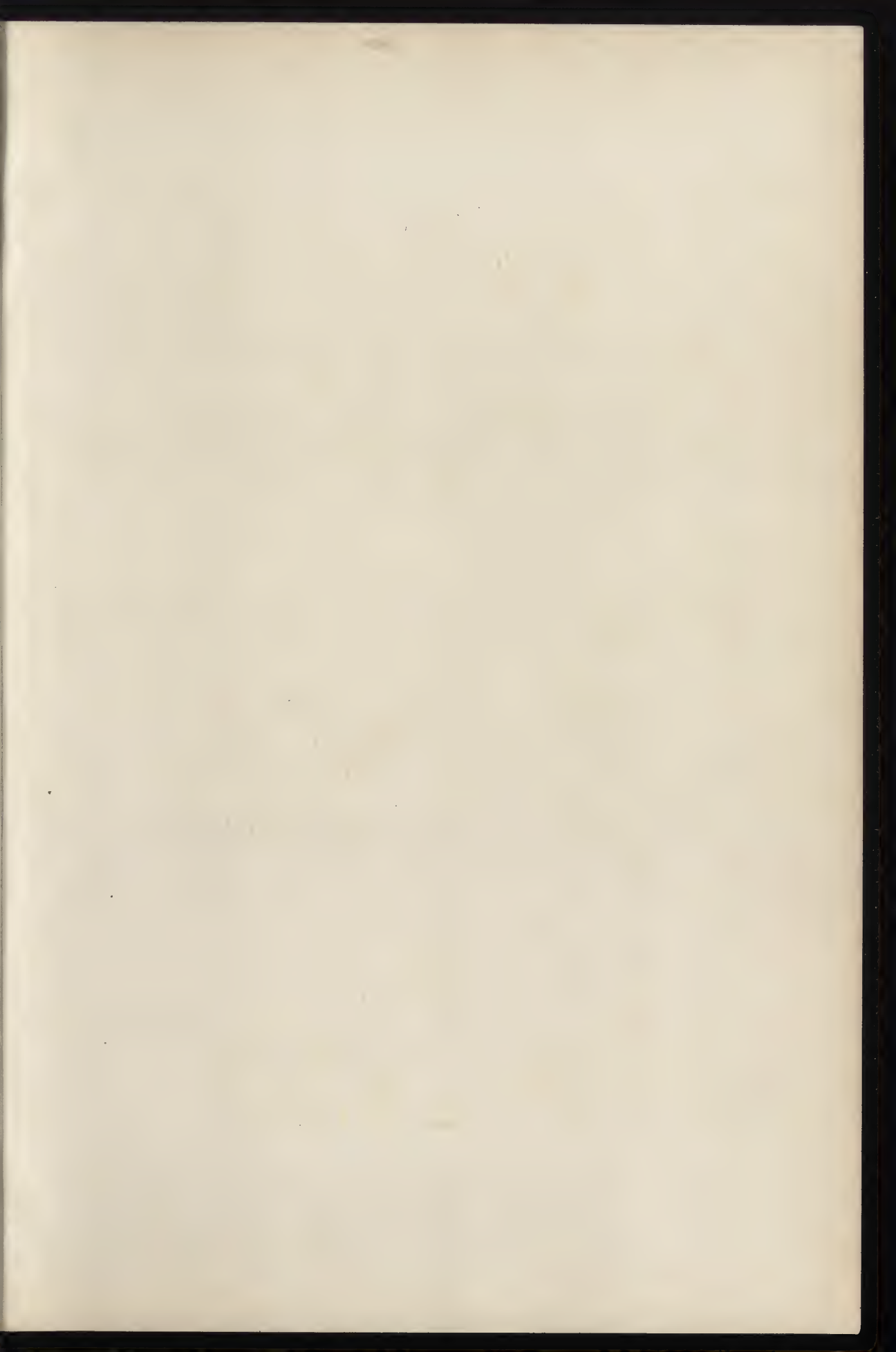
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LOVE, GRIEF, JEALOUSY, FEAR—THE
SEVENTEENTH CENTURY'S ATTRACTIONS FOR WOMEN
Lent by The J. Paul Getty Center, Los Angeles

THE J. PAUL GETTY CENTER, LOS ANGELES
THE J. PAUL GETTY CENTER, LOS ANGELES

THE ARCHITECTURAL RECORD

JANVARY, 1913

VOLUME XXXIII



NUMBER I



TAPESTRIES FROM THE ARCHITECTURAL POINT OF VIEW

By GEORGE LELAND HUNTER



I

FROM THE ARCHITECTURAL point of view, tapestries are the fundamental wall decoration. More closely than any other form of art do they work into the architectural background of an interior. More intimately than any other decorative creation do they associate themselves with the horizontal and vertical straight lines that are the basis of architectural construction.

Tapestries in surface structure are nothing less than architectural line drawings executed on the loom with yarns, instead of on paper with ink from an engraved block of wood or sheet of copper. All arras wall tapestries have horizontal ribs, in relief crossed at right angles by fine vertical weft threads that often group themselves into vertical spires of color called hatchings (*hachures*.)

These hatchings are of vital significance in the texture of tapestry. In the

glorious compositions of the Golden Age of Tapestry, they were strongly accentuated, and the toning and blending of colors was largely accomplished by hatching on the loom, instead of by dipping in the dye pot.

In the Golden Age of Tapestry—the last half of the Fifteenth Century and the first half of the Sixteenth Century—the texture of tapestry was thoroughly understood. The horizontal ribs were coarse and the vertical hatchings were long and definite. That is why tapestries of this period are to be preferred for mural ornamentation to tapestries of any other period, as well as to wall paper, and frescoes, and paintings on cloth, the last called *counterfeit arras* in the days when every gentleman's residence was counted beautiful in proportion to the number of *real arras* tapestries that he possessed.

But while real arras tapestries (called



"THE TRIUMPH OF THE VIRGIN," A GOTHIC TRIPTYCH TAPESTRY.
Woven, as the Latin inscription shows, in 1485. On the left, Moses
striking a rock, on the right the "Piscina Probatice," or healing pool.

"arras" in English and *arazzi* in Italian from the little French-Flemish town of Arras that in the Fourteenth and Fifteenth Centuries was the centre of production of "storied" wall tapestries) are essentially architectural line drawings, they are architectural line drawings of an exquisitely refined and

paintings, and the story interest of romantic history and fiction.

Tapestries may well be considered the highest and most sensitive form of art.

Until recently the majority of Americans looked on tapestries as an intricate and perhaps interesting but vastly inferior form of painting. In talking and



ONE OF THE SAINT REMY SET AT THE CATHEDRAL OF RHEIMS.
Early Renaissance in style.

elegantly elaborated type. They interpret the picture stories they have to tell *not* in flat black lines on white paper, but in color and relief obtained by covering coarse warp threads with fine weft threads of wool and gold and silver and silk. They combine more than the texture interest of damask and brocade and Oriental rugs, with the color interest of

writing about tapestries they described them as "painted on the loom" and measured their merit by the closeness of their resemblance to oil paintings on canvas. However, as all Europe did the same for over a century, and as there are not to-day half a dozen men in Europe who really understand the texture of arras tapestries, we need not, as a nation, put



THE FIRST PAIR OF PANELS OF THE SET CALLED "THE TRIUMPH."

Part of a series of tapestries woven on an American loom to decorate the upper and lower halls of a New York residence.

on sackcloth and ashes to express our artistic humiliation. Instead we should take advantage of the fact that we have in this country the looms and the weavers and the artistic and technical leadership to revive the art of tapestry weaving as practised four centuries ago.

Until recently the use of tapestries in America was confined to private residences. Americans knew so little about their nature and character that even those who visited the great collections of Spain and Austria and France and Sweden and England, and saw how wonderfully tapestries are used abroad to adorn cathedrals and churches, city halls and courts of justice, opera houses and theatres, libraries and museums, seemed unable to appreciate the fact that American public buildings could be transformed internally by hanging on their walls the woven treasures of the Fifteenth and Sixteenth Centuries.

A most notable instance of the use of tapestries in church decoration is at the Cathedral of St. John the Divine on Morningside Heights in New York City. Though not particularly fine examples of the weaver's art, these eleven tapestries designed by Romanelli and woven by Rivera in the first half of the Seventeenth Century at the Barberini tapestry works in Rome, dress and make beautiful the massive walls of the cathedral as nothing else could. Even the fact that they are Baroque in style, while the edifice is pre-Renaissance, does not seem to matter. Their structure and texture lock them into position so that they have become an essential part of the whole.

Among American museums the Metropolitan, owing largely to the gifts and loans of the President, Mr. J. Pierpont Morgan, stands easily first. There are no less than forty large tapestries displayed on its walls. Tapestries dominate



THE SECOND PAIR OF PANELS OF THE SET CALLED "THE TRIUMPH."

Part of a series of tapestries woven on an American loom to decorate the upper and lower halls of a New York residence.

the main entrance hall, as well as the decorative art wings. A tapestry is the principal decorative feature of the library.

Only a few years ago—less than ten—the Metropolitan Museum had few tapestries, and those that it had were badly hung, and were incorrectly described in the Museum guide. The coming over here of Sir C. Purdon Clarke to act as Director of the Museum, and the succession to the Directorship of the learned and gifted Edward Robinson, together with the acquisition of funds that make it possible for the Museum to buy in the open market and when necessary, in competition with private collectors, wrought a wonderful change. Tapestries at the Metropolitan Museum are not only effectively shown, but also cleaned and repaired and cared for in the most perfect manner by methods largely original with Frau Korte, who has charge of that work.

I said above that the tapestries at the Metropolitan Museum are well hung. This means not only that they are well placed, but also that they hang loose, with the folds and puckers that enhance the intrinsic beauties of tapestry texture, and take away the hardness that is inseparable from flat line drawings. For tapestries, to a degree existent in no other decoration, depend upon their *texture*.

To frame tapestries is little short of criminal. To cover them with glass endangers their existence. When they hang free and untrammelled, they are comparatively safe against moths and fire. Then it is easy to take them down instantly, fold them up under one arm and walk away with them. Then insurance companies are willing to make favorable rates, because then the risk is lessened. Then it is easy to get at them to clean out dust and easy to transport them to the room where formaldehyde vapor baths destroy the moths.



THE THIRD PAIR OF PANELS OF THE SET CALLED "THE TRIUMPH."

Part of a series of tapestries woven on an American loom to decorate the upper and lower halls of a New York residence.

I am told that several persons with some pretensions to artistic knowledge and taste have criticised the appearance of the Mazarin tapestry at the Metropolitan Museum since its recent cleaning. This criticism was based on crass ignorance. The tapestry has been extraordinarily improved by the removal of the dust—an operation that required unusual skill. Details are now visible that have not before been visible for at least a century. Little puckers and irregularities of texture are now revealed that formerly were concealed by the dirt of ages. The tapestry quality of the composition has been accentuated and the tapestry, though carried in a frame attached by a former owner, is not stretched out hard and flat like a drawing on paper or a painting on canvas.

All over the United States the increasing interest in tapestries, especially among architects, is manifesting itself in

various ways. The new Blackstone Theatre in Chicago has a drop curtain in tapestry. The New York Public Library has a superb Brussels tapestry, picturing Apollo and the Muses and the Olympic deities on Parnassus, woven by I. DeVos about 1700 (wrongly dated and wrongly attributed in the catalogue of the Stuart Collection to which it belongs). The St. Regis Hotel has several Brussels Seventeenth Century (not Sixteenth as the descriptive booklet says) tapestries, woven by I. Van Zeunen. The Knickerbocker Hotel has several Cæsar tapestries woven by Leefdael and Strecken, the two Brussels Seventeenth Century weavers who produced the Cleopatra series at the Metropolitan Museum. The Sleepy Hollow Country Club has interesting wall panels woven on modern American looms. The new McAlpin Hotel is to have a set of twenty-six panels, picturing the Story of New York City from



SEVENTH PANEL OF THE SET CALLED "THE TRIUMPH."

Part of a series of tapestries woven on an American loom to decorate the upper and lower halls of a New York residence.

early Dutch days down to the present time. The Morgan Memorial Library in Hartford has important tapestries presented by the donor of the building. The Boston Fine Arts Museum has a number of important tapestries, and both the Cincinnati and the Chicago Museums of Fine Arts have important examples on exhibition. The Field Columbian Museum glories in the possession of the second piece of tapestry ever woven in America. And this by no means exhausts the list.

But there are hundreds of other public buildings that by contrast with these are naked and ashamed. There are huge wall spaces treated either ineffectively or not at all. There are pretentious mural paintings—many of them of great merit as paintings—that utterly fail to accomplish their purpose from the architectural point of view. It is time that the architects of the United States should co-operate actively, intelligently and seriously,

in restoring the universal vogue of the only kind of wall hanging that meets every architectural requirement.

II.

THE ORIGIN OF tapestries it is vain to seek. The figured fabric easiest to weave on the primitive loom is tapestry, and for that reason we find pieces of tapestry used to adorn the cloaks and robes of primitive peoples in all ages, from remote antiquity to the present time, and in all parts of the world.

These primitive tapestries—ancient Egyptian, ancient Greek, Coptic, Peruvian, Mexican, Navajo, Tunisian, Oriental kelims—though real tapestries in every sense of the word, *are not arras tapestries*.

The essential feature of all real tapestries is that the warp threads be entirely hidden by the weft threads and that the figures be formed by inserting the weft in plain weave (i.e., complete



NORTH WALL OF THE UPPER HALL OF A NEW YORK RESIDENCE
(The Tapestries shown on the preceding four pages)

alteration with the warp, under every odd warp and over every even warp thread, or vice versa), in blocks of color. Moreover, in a large proportion of real tapestries, the presence of the hidden warp threads is made evident by the way they push up in ridges or ribs the weft threads that cover them. In other words, nearly all real tapestries are figured reps.

Arras tapestries represent the art brought to perfection, and developed to its highest point in the last half of the Fifteenth Century, and the first half of the Sixteenth Century—as far as can be shown by the actual examples that have survived—but undoubtedly woven also by the ancient Greeks and the ancient Romans, as is proven by passages in the *Iliad* and the *Odyssey*, and by the ancient Greek vase painting, and by Ovid's description of the tapestry-weaving contest between Pallas and Arachne.

There are also very unusual all-silk tapestries from China, both ancient and modern, depicting not only flower and fruit ornamentation, but also landscapes and personages. Many of these Chinese tapestries have only the main outlines woven, the gradations of shade and tone being produced by painting with dyes after weaving. None of the Chinese tapestries that I have seen, however,

could in any sense be called arras tapestries.

An essential characteristic of arras tapestries is not only the comparatively coarse horizontal ribs covered with fine vertical weft threads, but also the vertical hatchings or spires of color into which the weft threads often group themselves, producing blendings and gradations of tone that in other tapestries are produced in the dye pot.

Arras tapestries—named from the French-Flemish city that was the chief center of their manufacture in the Fourteenth and Fifteenth Centuries—represent the highest point that has ever been attained by the art of weaving. They also represent the most effective means that has ever been discovered for decorating walls with pictured stories of the history and romance of the world.

During the ages of Mohammedan supremacy in Europe—when Christianity trembled before Moslems, as they now tremble before Christians—any interesting silk tapestries, in weave resembling Chinese rather than arras tapestries, were produced in Persia, Egypt, Spain and Sicily. The ancient Roman Empire centered at Constantinople, after the capital was removed there from Rome, by Constantine in 330 A.D., also produced its share.



SHOWING TAPESTRY PANELS WOVEN ON AN AMERICAN LOOM.
(decorate the wall opposite to that shown above.)

In the museums of Lyons, Nuremberg, and South Kensington are fragments attributed to the Twelfth Century, that formerly belonged to the Church of Saint Gereon in Cologne. Large circular medallions on a brownish-blue ground represent, in tones of light ivory, a winged griffin with eagle above and bull below. The design is clearly of Byzantine origin, but the crudeness of the weave indicates an Occidental maker.

In the Cathedral of Halberstadt are three quaint Twelfth or Thirteenth Century tapestries, perhaps of local manufacture. Two of these are narrow bands—the first picturing Christ and the Apostles, the second the story of Abraham and Isaac—intended to hang above the choir stalls.

In the Fourteenth Century undoubtedly many splendid tapestries were woven, but of the splendid Fourteenth Century tapestries only one set has survived, and that is in a sadly mutilated condition, after having been subjected to brutal treatment at the hands of Eighteenth and Nineteenth Century vandals. I refer to the famous set of seven tapestries at the Cathedral of Angers, picturing the Apocalypse of St. John the Divine.

Of tapestries woven at Arras, there remains only one set that can be positively identified, the Fifteenth Century

Story of Saint Piat and Saint Eleuthere at the Cathedral of Tournai in Belgium. Of this set we know the exact month and year of completion, the name of the maker and the name of the donor; for one of the pieces bore the inscription which reads translated:

These cloths were made and completed
In Arras by Pierrot Fere
The year one thousand four hundred two
In December gracious month
Will all the saints kindly pray to God
For the soul of Toussaint Prier?

The most important Early Fifteenth Century tapestry in the United States is the Burgundian Seven Sacraments, illustrated and described in the November number of THE ARCHITECTURAL RECORD.

The Golden Age of tapestry was the last half of the Fifteenth Century and the first half of the Sixteenth Century, the age during which were produced in Brussels and other French-Flemish cities such marvelous sets as the Lady with the Unicorn, in the Cluny Museum, the David and Bethsheba set in the same museum, the *Baillée des Roses* fragments in the Metropolitan Museum, the Sheep Shearing fragment in the Brussels Museum, and the Wood Cutters in the Paris Musée des Arts Decoratifs and the Victoria and Albert Museum; the Trojan War Tapestries, now in the Victoria and Albert Museum and elsewhere; the Story



DETAIL OF LEFT THIRD OF ONE OF THE LATE GOTHIC
"DAVID AND BETHSHEBA" SET OF TAPESTRIES.
(In the Cluny Museum.)



ONE OF THE LATE GOTHIC "DAVID AND BETHSHEBA" SET OF TAPESTRIES.
(In the Cluny Museum.)

of Cæsar in the Berne Historical Museum; the Clovis tapestries at the Cathedral of Rheims. Wonderfully fascinating also are the late Gothic triptych tapestries, such as the Mazarin tapestry, lent to the Metropolitan Museum, by

Mr. Morgan; the Brussels Museum's Triumph of Christ; Mr. Blumenthal's Story of Charlemagne; the Triumph of the Virgin in the Louvre and the Story of the Virgin in the Royal Spanish Collection.

(To be continued in "The Architectural Record" for February.)



"THE RAPE OF THE SABINES," PART OF A "ROMULUS AND REMUS" SET IN THE ROYAL SPANISH COLLECTION.

Compare with it the three tapestries lent by Miss Breese to the Metropolitan Museum.



RENAISSANCE "VERDURE WITH PERSONAGES" (CHILDREN PLAYING).
One of a set of five in a New York Shop.



"OUR LADY OF HOPE," THE SPANISH CHURCH, NEW YORK CITY.
CHARLES P. HUNTINGTON, ARCHITECT.



PORTION OF DECORATION, "THE STATIONS OF THE CROSS," BY HENRY DEY.



THE SPANISH CHVRCH IN NEW YORK CITY "OVR LADY OF HOPE"



BY L. R. MCCABE.

ALTHOUGH IT IS six hundred and twenty years since the discovery of America, 1912 finds New York with its first Spanish church.

The Church of Our Lady of Hope is situated on 156th Street, near the Riverside Drive. It is within the spacious terrace (originally Audubon Park), crowned to day by the Museums of the Hispanic and Numismatic Societies of America, the whole imposingly sentinelled, as it were, on the Broadway side at the corner of 156th Street, by the building of the Geographical Society of America.

The Spanish church is fourth in this unique group of buildings of which the Hispanic Museum is the motif. When the 155th Street corner has its building in architectural conformity with the Geographical Society's home, there will be a monumental entrance from Broadway to this natural terrace overlooking the Hudson River.

Outside of a university, this is educational centralization unique in America. With three distinctive libraries and collections accessibly convenient for the common benefit of the respective societies, students and the public, will come



"En recuerdo de Felipe Barreda y Carmen de Osma de Barreda."

THE "VISITATION" WINDOW, "OUR
LADY OF HOPE," NEW YORK CITY.
CHARLES P. HUNTINGTON, ARCHITECT.

in time, as originally planned, centralization in heating, illuminating and general utilitarian co-operation, making a civic group at once dignified and efficient.

It is rarely given the American architect to work out so large and attractive a scheme of developments, and that Mr. Charles P. Huntington, the architect, has made the most of his opportunity is matter of civic pride.

The ground level of Our Lady of Hope is some fifteen feet above the street, its roof line is about even with that of the other buildings of the group. It is reached from the street by a flight of steps broken by two landings. The steps are made of buff brick ornamented with buff terra cotta balustrades, which lead to a small terrace in front of the building. This terrace has a terra cotta balustrade supporting bronze lamps.

The church, in keeping with the other buildings, is an adapted style of the Italian Renaissance. It is distinctly Roman in design. Apart from early Christian art, Spain never had a distinctive ecclesiastical architecture. From the invasion of the Moors in the ninth century to their expulsion in 1492, it clung to the earliest Gothic. It was wholly unaffected by the architecture of the Moors, despite it recognized their superior artistic training, and employed them extensively as builders and decorators of its cathedrals, churches and monasteries.

Spain, like all Europe, was influenced by the early and later Italian Renaissance. It retained, however, as does every nation, certain inherent qualities, which are best defined as *feeling*. It is this Spanish feeling that both architect and decorator have aimed to embody in Our Lady of Hope.

The church has a portico of four Ionic columns of terra cotta surmounted by an ornamented pediment and cross of the same material. Unlike the other buildings of the group, which are grey limestone, the church is built of buff brick with buff terra cotta cornices and trim crowned by an ornamented terra cotta balustrade. The change in



DECORATION BY SOROLLA, "OUR LADY OF HOPE," NEW YORK CITY.
Charles P. Huntington, Architect.

material relieves the eye and varies the color.

In the interior a vestibule leads to galleries and organ loft and into the body of the church, which is eighty feet deep with a seating capacity of four hundred. The nave is formed by high round arches crowned by a dome and a flat stained glass skylight. This is the only New York church known to architect or decorator with nave illuminated by a flat skylight roof. The aisles on either side of the nave are broken by galleries with balconies between the arches. These side aisles are lighted by six beautiful stained glass memorial windows of American design and English execution.

From the sanctuary niche, doors open on either side into the sacristy, the organ loft occupying the high arch opposite the sanctuary.

When the builder, Mr. John Clark Udall, had finished his part, the interior of the church was turned over to Mr. Caryl Coleman. This erudite authority on ecclesiastical art, devised and executed a scheme of decoration which virtually converts Our Lady of Hope into a literal substantiation of a title given to the Mother of God in her litany—"House of Gold." "In Genoa when I was a boy," said Mr. Coleman, "I was immensely impressed with the gold Church of the Annunciation. I went back to it when I was a grown man, with the eyes of the artist, the craftsman. The impression of boyhood deepened, and I said to myself: 'Some day I shall make a gold church.' In Our Lady of Hope I realized the time was ripe to make good that early resolution. There was no money for the precious metal, and I set about for a substitute."

The first step in the metalizing process was secured by lining the entire wall space with aluminum. In the treatment of aluminum for gold effect, alcohol has heretofore been used in mixing the glazes. The result—with the passing of time—has been faded, washed out, grey, greenish tones with scarcely a suggestion of the original gold tint. By substituting oil for alcohol in the mixing of the glazes, Mr. Coleman has obtained veritable gold effects that promise the wear of the real metal.

Upon this metallic background, the entire plain wall surface is covered with a Spanish silk brocade of Renaissance design. The design is worked out in a green gold glaze against a yellow gold background.

The vault of the half dome and the coves of the ceiling are finished in plain hammered metal. In the soffits of the arches is a Renaissance design carrying the word "*pax*" (peace). Emblazoned in the gold frieze which encircles the entire auditorium are the words of Christ to St. Peter: "Thou art Peter and upon this rock I shall build My Church,

and the gates of Hell shall not prevail against it."

Upon the spandrels of the great arches, worked out with transparent colors against the gold background are the adoring angels, while on the spandrels of the smaller arches the four Evangelists are symbolically introduced.

In keeping with the architetonic notes of the church, the larger windows are glazed with Renaissance glass. The subjects are the Annunciation, Visitation, Nativity, Adoration, Presentation, and the Marriage Feast of Cana.

The skylight roof of the nave is divided into three parts. In each division is the symbol of the Father, the Son and the Holy Ghost. Mindful of the words of Christ: "I am the vine and ye are the branches," Mr. Coleman has introduced vine and fruit, making of them the heraldic device of many of the Archiepiscopal Sees of the Spanish world as Madrid, Havana, Lima, Buenos Ayres, Mexico. This detail necessitated extensive correspondence with the heads of the various Sees in order to get the accurate heraldic bearings.

The four windows looking into the sanctuary are glazed with four of the seven spirits that stand before the Throne of God—the Archangels: Michael, Gabriel, Raphael, Uriel. The windows in the facade of the church are glazed with the name of Jesus and accompanying symbols. Further placed in the windows are the arms of the present Pope Pius X and His Eminence, Cardinal Farley.

On either side of the main entrance are two windows illustrating Motherhood: Mary, Mother of Our Lord, returning from Calvary on the arm of John, the Beloved, and St. Monica, mother of St. Augustine, in her last conversation at Ostia, as described in the Confessions of Augustine.

Aside from decorative value, the fourteen Stations of the Cross, grouped to make a continuous panorama, despite the broken wall space, have more than passing interest for the aspirant.

"They are by no means the highest form of pictorial art," said Mr. Coleman, "yet I maintain they are far superi-



INTERIOR TOWARD CHANCEL, "OUR
LADY OF HOPE," NEW YORK CITY.
CHARLES P. HUNTINGTON, ARCHT.
CARYL COLEMAN, DECORATOR.

or to any painted Stations of the Cross in the churches of America."

Without money to employ the master painters he would have selected for the work, Mr. Coleman made the Stations of the Cross subject of a competition open to young men whom he knew were doing good things and were ambitious to "arrive." Five competed with the understanding that Mr. Coleman should constitute the jury and that his decision should be final. When the award was made to Mr. Henry Dey, the competitors viewed the submitted work, and without knowing Mr. Coleman's decision, they unanimously accorded with it.

The masterpiece of the gold church is the High Altar. So successfully have architect and decorator collaborated, that it is apparent to the untutored eye that the church was built to enshrine it.

"I am particularly proud of the altars," confessed Mr. Huntington. "Their beauty of color, the rich yellow Sienna marble carved as only Italy can carve, the proportions of their parts, their complete harmony with each other and the architecture of the church make them the handsomest altars in New York."

The High Altar is the gift of Mrs. Frederic C. Penfield, and the sanctuary floor of marble and mosaic, and the Sienna marble Communion rail and bronze door, are all worked out on lines in well studied harmony with it.

The two side altars, architectural and pictorial complement of the High Altar, are enriched by paintings from two of Spain's greatest living artists—Madrado and Sorolla. These side altars were gifts of Mr. J. Pierpont Morgan and Mr. Frederic C. Penfield.

In the enrichment of the altars there is much to recall the days of Beni Cellini, so scholarly the care, so finished the art with which minutest details are worked out.

The door of the tabernacle of the High Altar, for example, is a gem of Christian symbolism and the gold-

smith's art. It is made of bars of pure gold, repousse and chiselled work, enriched with transparent enamel of sterling silver grading from a silver tone to a deep emerald.

The key of this door is of gold and diamonds, once part of the personal jewelry of a well known Spanish-American woman in whose memory it was made.

It is in the form of a fish, because the letters composing the Greek word for fish, make the final letter in Greek "Jesus Christ, Son of God, Saviour." The word appears on one side of the handle of the key in gold letters buried in transparent green enamel. On the reverse side is the name of Jesus in its monogrammatic form in combination with Alpha and Omega. Around the border is a memorial inscription and a text from Holy Scripture.

On a side altar are a crucifix and six candlesticks made of pure gold and transparent enamels. Excepting the body of the cross, which is a reproduction from an Italian work of the fifteenth century, Mr. Coleman asserts that the whole is absolutely original in design, as are the four bronze memorial lamps in the nave.

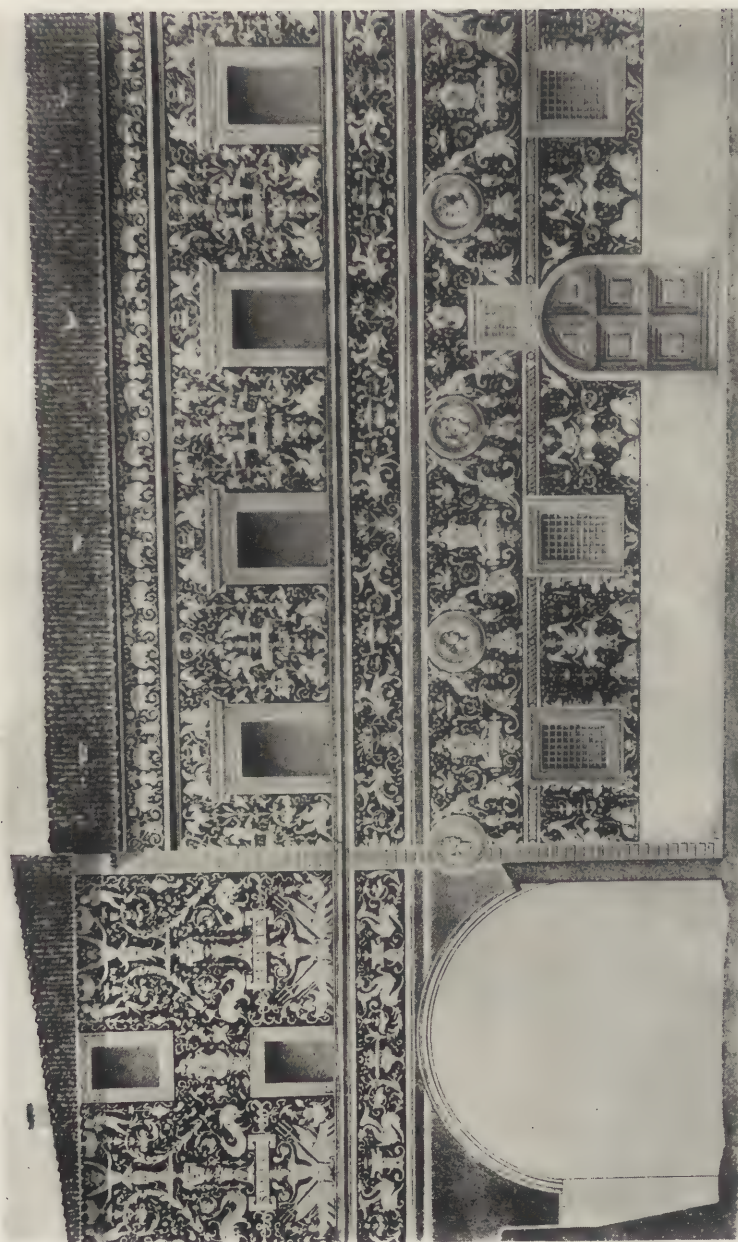
"Debarring the motif, which is that of the Renaissance period," said Mr. Coleman, "they are absolutely original. In making the designs I transported myself back into the spirit and feeling of mediaeval Spain so far as is possible for a twentieth century man."

Not only candlesticks, crucifix (gift of Mrs. Frederick Vanderbilt), missal-stands, praying desks, consecration crosses and holy water stoups, but the poor boxes harmonize with one another in period, style and color, while the whole is in complete unison with the architectural character of the building, making Our Lady of Hope not only a "thing of beauty," but an auditorium of Christian art well worth the study of architect, decorator and builder, if not the "man in the street."



*The Altar Lamp a Gift from the
King of Spain.*

DETAIL—THE ALTAR—"OUR LADY OF HOPE,"
NEW YORK CITY. CHARLES P. HUNTINGTON,
ARCHITECT. CARYL COLEMAN, DECORATOR.



A FACADE DECORATED IN SGRAFFITO—1584,
PALAZZO D'ALESSANDRO VITELLI ALLA CANNONIERA.

*Courtesy of the Avery Library.
Photograph by M. F. Friederang.*



DETAIL OF SGRAFFITO WORK ON THE FACADE OF 548 FIFTH AVENUE, NEW YORK CITY.
Menconi, Decorator.

AN ANCIENT ART REVIVED AN ACCOUNT OF "SGRAFFITO" BY MAXIMILIAN F FRIEDERANG

SO MUCH HAS been written on the subject of *fresco buono* and the sister art of *sgraffito*, that it may now be difficult to say anything in the way of general theory which has not already been either observed upon or hinted at by some one or other of the ingenious and learned writers of those countries of Europe where this art has had the advantage of being cultivated earlier and more widely encouraged than in this country.

Therefore, without attempting either to avoid or to follow the tracks of others, I shall present a series of observations which appear to me best calculated to lead attention into the track of study. Those studies of our predecessors were, more than any other means, the direct cause of their successes, and may enable us, if anything can, to sustain and to perpetuate the art, and to further the attainment of whatever other desiderata may yet remain for the completing and perfecting of *sgraffito*.



Courtesy of the Avery Library.
A SGRAFFITO PANEL FROM THE
PALAZZO D'ALESSANDRO VITELLI
ALLA CANNONIERA, 1584.

Sgraffito comes from the Italian word for "scratchwork," hatching, black and white work, and "chiar-oscuro" of the writers of the seventeenth and eighteenth century. A French author in 1770 describes it as a sort of black and white fresco and creates the name "*manière égratinée*." Our Russel Sturgis, in the Dictionary of Architecture and Building,

gives us the following terms: "The scratching or scoring of the surface, as of fresh plaster, with a point to produce decorative effects. Sometimes, in plaster work or pottery, the scoring is done so as to reveal a surface of different color beneath. The process is sometimes carried far, even to the decoration of large wall surfaces."

The spelling of "*Graffito*" is Florentine in root, but is correct, and most Latin languages follow that derivation.

Vasari describes the process, and in "*Lives*" (edit. 1851, iii, 348-9) states that it was the invention of Andrea Feltrini, called di Cosima, of Florence, who cov-



A SGRAFFITO FRIEZE EXECUTED IN 1877, IN VIENNA.
Drawn by M. F. Friederang.

ered the fronts with an intomaco of black plaster, which, while in its fresh state, he covered with a white plaster and transferred his cartoons on this, and then hatching the outline with a graving iron so as to show the black plaster through, he then went over the whole work with a black or darkly tinted color in a very fluid state, as stated in his (Vasari's) Florentine remarks on "hatching."

The first façade so done by Cosimo was that of the Palazzo Gondi in the Borgo Oguissanti followed later by an elaborate one on the Lung Arno near the church of S. Michele, which was in a grander and more elab-

orate manner. Vasari (IV., p. 85) mentions that Perino del Vaga executed the front of the house of the Marchesa di Massa near that of Maestro Pasquino, in chiar-oscuro after the manner of Polidoro and Maturino.

Vasari and Bossi throw no light as to earlier works, but a case in the South Kensington Museum is full of specimens of *sgraffito* pottery, Italian in origin, and of the Fifteenth Century—possibly the application to house decoration in the Fifteenth and Sixteenth Centuries, followed. The Metropolitan Museum in New York has many very valuable examples, conveying lessons in the historic development of the art and technique of *fresco* and *sgraffito* and the color chemistry.

The daughter of Dibutades, a potter of Corinth, while bidding farewell one evening to her lover, was struck by the distinctness of his shadow cast by the light of a lamp on the plaster wall of her dwelling. The idea occurred to her to preserve the image of her beloved, by tracing with a pointed implement at hand, the outline of his figure on the wall; and when her father, the potter, came home, he appreciated the importance of her discovery, crude though the work was, and he cut the plaster out within the drawing she had thus made, took a cast in clay from it, and baked it with his other pottery. Such is the well known Greek tradition, assigning a simultaneous origin to the graphic and plastic arts and claiming both as of Greek invention. But, unfortunately for the truth of this pretty story, the arts were known and practiced long before.



Courtesy of the Avery Library.

A SGRAFFITO PANEL FROM THE PALAZZO
D'ALESSANDRO VITELLI ALLA CAN-
NONIERA, 1584.



BY MR. STEGER, OF VIENNA, 1877.
Drawn by M. F. Friederang.

The Metropolitan Museum and the Museum of Natural History have proofs without going farther, that *sgraffito* is the earliest type of drawing and was used in every country where the light of sunshine and the first rays of civilization appear.

The drawing in the sand or snow, cut in the bark of the tree or in stone, the runic sign writing are all primitive expressions of the technique of *sgraffito*.

This inborn natural talent of art may be easily traced to the very first human creatures, and we may easily follow the primitive man with a stick drawing signs in the sand. The more complicated forms of the early scratched inscriptions which have been of such great value to the modern archæologists are all successful applications of the technique of *sgraffito*.

Polidore da Caravaggio with Maturina followed the system of "scratched work" at Rome before 1526. Pile's "Art of Painting," (London, 1754, page 123), mentions Cosimo, D. Beccafumi and G. da Udini as producing work of this kind. Morto da Feltro, in arabesques and grotesques, was master of Cosimo.

Sgraffito is described from Vasari in Neve Builders Dict. (1736, 5, Vo., Painting VI) and in the Twentieth Report of the Science and Art Department, South Kensington (London, 1873).

The late Director of the Metropolitan Museum in New York, Sir Purdon Clark, in a conversation on our personal investigation and observations on ancient arts, said: "Work executed in England in *sgraffito* has proved of great satisfaction, and not only the cause of general admiration but a technical success, which proves a *fresco* and *sgraffito* can, with

out question, be used in the damp and saline air of London."

My personal experience is the same, and I may only add to his words that cleanliness, diligence and careful application of the uses of materials will produce success under most difficult conditions.

Sir Purdon states further: "On my visit to the Orient, to India and Persia, China and Japan, I found works in *sgraffito* which, in minute details and



WORKING ON A FULL-SIZE "CARTOON" FOR
THE SGRAFFITO DECORATIONS OF ST.
MARY'S CHURCH, NORWALK, CONN.



DETAILS OF SGRAFFITO DECORATION.

perfect execution, cannot be duplicated anywhere in the civilized world." A paper on *sgraffito* decoration was read by Mr. A. S. Cole to the Royal Institute of British Architects (10th of March, 1873).

At Abou Simbel, there is an inscription in *sgraffito* in the hieratic characters, left by a contemporary visitor; and at Spaleto, near the Cathedral, there is a large palace covered with designs attributed to Julio Romano. Letarouilly (Rome Moderne, Fol. Paris, 1849, pl. 110) gives a Sixteenth Century façade in vicolo de Matricciani. At Pisa there is the front of the Palazzo Conventuale, of the order of S. Stefano, by Forzori.

Our builders of to-day have attempted over and over again to work in *sgraffito*, and our foremost architects all over the world have been recognizing its value, but the failures connected with many attempts are explained by the careful study of conditions and the incapacity of the artists and decorators engaged in the work. Haste and nervousness on the part of architect and artist will lead to great disappointments. I have seen works executed on façades, when snow and ice were on the ground, or in weather near zero threatening, or where rain for days washed out all the strength of the plaster; I have found the lime-putty used to be one or two days old, and the pigments bought in a paint shop without further investigation. And often

the entire work has been intrusted to a babel without authority. Most of our decorators or artists have, without any experience, relied on scanty book information, and the plasterer has had to depend on this. Our up-to-date plasterer must work quickly, and he is used to materials different from those used in the time of the Greeks and Romans and during the Renaissance. An artist executing fresco or *sgraffito* must watch with both eyes and be very practical if he wants the proper material on the wall; a one-to-three or one-to-four plaster is unhandy and difficult for the present day artisan to work. The *sgraffito* problem is another difficulty, and will come as a novelty even to the most practical plasterer. One could give hundreds of directions, which are all new in their application to the profession, but which are all essential to the success of the art.

I needed twenty years of practice and great courage for my later achievements in *sgraffito*, every day furnishing new and valuable information.

There are always such problems as damp, saltpetre, and other deteriorations of the mineral wall. Nothing must be neglected; no healthy body can be expected where the bone is sick and no healthy successful decoration is possible where the foundation is not in the most perfect condition. One handful of cement or plaster-of-paris in the plaster is destructive to the durability of any



A SGRAFFITO PANEL DECORATION.



THE BUCKINGHAM BUILDING—MUSIC HALL IN WATER-
BURY, CONN. MCKIM, MEAD AND WHITE, ARCHI-
TECTS. SGRAFFITO WORK BY M. F. FRIEDERANG.



SGRAFFITO PANEL FROM A FLORENTINE
PALACE.

Drawn by M. F. Friederang.

fresco or *sgraffito* work. The latter material may furnish a solid, quick setting surface, a thing which is very pleasing to the plasterer, but which destroys the crystallization of the artistic body and dries the ground so quickly that there is no time to perform the work. After the first frost or the action of our steam heating apparatuses, cracking is imminent.

The setting of the plain, natural material used for *fresco* and *sgraffito* will, in six months, be more safe than the best Portland cement.

In Egypt and Asia Minor I personally investigated the different antique plasters. I found plasters laid on wood lath, on twisted and braided bamboos and grasses, so solid and excellent in unity of body, that only the hair and the miner-

alized vegetable formations could give me proof that I had only a plaster and not a solid stone grown into a stone, as hard and solid as quartz (density 6).

My investigation, scientifically pursued, furnished me with the following facts:—

A plaster made from a natural unity of materials, not forced into a connection, will grow in time into a solid mineral body, where any forced material like cement and plaster-of-paris will dissolve their alliance, when the molecular action takes its natural course. These natural alliances will not only take place, as all mineral conditions show, but will be assisted by nature and nature will not destroy, but will help in any natural growth. Thousands of valuable productions of early art which today grace our museums, classified as sculptures in marble, sandstone, limestone, granite or porphyry, are in reality nothing more than excellent works of plaster and the arts combined—the natural growth and action of a satisfactory union of materials.

Most of the works of Egypt and Assyria and Babylon may receive their explanation through this perfection in plaster.

They never use foreign materials, always the minerals natural in their surroundings, children grown into a natural alliance with the temperaments of climatical conditions.

Sgraffito introduces the use of certain colors, relative to which apply the following particulars:—

The pigments used in *sgraffito* or *fresco buono* by the Italian and Spanish masters are very simple, but they represent enough variety to enable a Raphael and Michelangelo to create wonders in colors, unlimited in their palette.

Armenino observes, "artificial colors never do well in *fresco* or *sgraffito*, nor can any art make them last long without changing, and particularly in the open air; the wall will not take any other than the natural minerals which are found in the ground and which consist of earths of different colors."

My personal observations are as follows:

I have to-day a color chart unlimited, with every variety of tints. Careful investigation shows their ability to withstand the action of the lime, and the chemical action of other active agents in plaster and colors. The next very prominent point of investigation is the durability or stability of the colors under natural and artificial light, as some excellent colors lime-proof and damp-proof bleach down to nothing in the electric light and others in the sunlight. It is possible, however, to produce a durable blue, as rich and beautiful and deep as the finest lapis lazuli, green in every variety, yellow like gold or sunlight and red in every shade. The primitive earth and mineral colors—sepia, sienna, ochre and umber, which are generally accepted as durable and good, are the greatest causes of failure. They require the greatest and most careful analysis. The best authorities on colors are: Armenino, Vasari, Pacheco, Palomino, Raphael, Michelangelo, Giotto, Cennino, Borghini and Leonardo da Vinci.

The historical records of the Accademia San Luca Roma, Carracci at Bologna, Perugia, Padua, Ferrara, Parma, Mantua, Placenza, Verona possess an unlimited wealth of valuable information. They all tell a story of Italian art, the rivalry amongst the different artists, schools and cities; with valuable technical facts full of lessons from the most brilliant artists and artisans.

It is remarkable how, with such great and valuable records, the art world has to make shift with guessing and questioning. One great truth and fact again comes to the front in my investigation: artists and decorators of to-day are not scholars, and rarely think, and the scholars are not artists. Men like Leonardo, Michelangelo and Cennino are great lights and exceptions.

Perhaps it is a little difficult to answer a question as to the relative merits of decoration in *fresco* or *sgraffito*.

On final analysis both are a form of *fresco buono*, the first being a mural decoration or a mural painting, where the technique is one of color, and in the latter, one in which mastery of drawing is the greater factor.

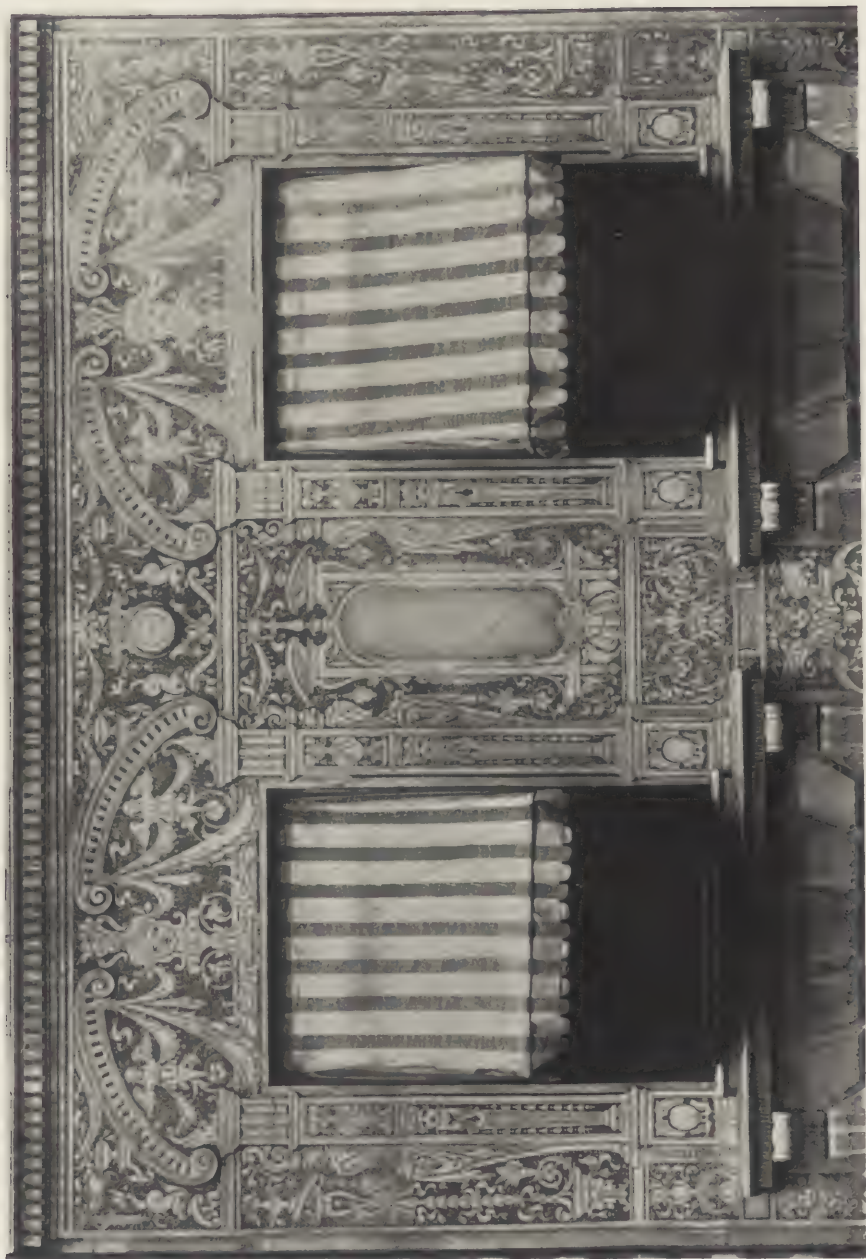


SGRAFFITO PANEL FROM A FLORENTINE PALACE.

Drawn by M. F. Friederang.

The *fresco buono* has quality superior to *sgraffito* for exterior façade decoration. It affords a clean, undisturbed wall space, without any crevices for frost or rain to weaken the body of plaster and the decoration. The discretion of the decorator may furnish counsel in the low relief cutting of the drawing. The simplicity and decorative quality of drawing the low relief cannot be duplicated otherwise for decorative effect.

The scratching of the drawing is very difficult, but an artist fully acquainted with pen and ink technique and with a good mastery in charcoal drawing will soon succeed in his work. Mastery and strength will soon take precedence over anything else, as there is no time for overcrowding details and only the dom-



DETAIL OF WINDOWS, 548 FIFTH AVENUE, NEW YORK CITY. CARRÈRE AND HASTINGS ARCHITECTS. SGRAFFITO DECORATIONS BY MENCONI.

inating line and the character of the drawing can be the guiding power. Everything mechanical, the use of a compass, ruler, anything outside the free hand is to be deplored, for it will produce a stiff and mechanical character in the decoration. For the man with ability here is an unlimited faculty in the use of this technique and it furnishes a splendid opportunity for the man of ability and dexterity as a draftsman. Peculiar qualities of line appear in *sgraffito*. The frieze which is executed in the Robing Room of the United States Supreme Court, with thirty-two portraits of the early lawgivers of Greece and Rome, have been likened to carvings in ivory.

The plaster, as explained by the originators of the art of *sgraffito*, must be compact and firm, but easy to cut in minute details. Lime mixer has a tendency to make the plaster brittle, but in connection with silicat "binder" the top layer will be soft as butter, without any tendency to cracking. With this binder it is possible to regulate the system of



DETAIL OF A SGRAFFITO PANEL.
FACADE AT 548 FIFTH AVE.,
NEW YORK CITY.
Carrère and Hastings, Architects.
Menconi, Decorator.

setting—from one to eight days—which furnishes ample time for the most careful execution of the design. There is no limit—from the elaborate finish of a Holbein etching to a bold drawing of Carragio. In the coloring of the plaster, which gives the strength and character of the line, solidity of color is demanded, a change of color being permissible only in the different parts of the composition. Difference in color, however, demands difference in plaster, which is to be mastered by artisans and not by artists, as the complication of the work should be avoided as far as possible.

In general, the men of art have freely chosen their profession, and suppose themselves to have special faculty for it; yet, as a body, they are an unhappy lot, many of them most clever charlatans, who are living in utterly false state of mind and action. Originality, dexterity, invention, imagination, and everything is asked from them except what is to be had for asking—honesty and sound



THREE WORKING "CARTOONS" FOR THE SGRAFFITO DECORATIONS OF ST. MARY'S CHURCH, NORWALK, CONN.
By Maximilian F. Friederang.



NO. 548 FIFTH AVENUE, NEW YORK CITY.
THE FACADE DECORATED IN SGRAFFITO.
Carrère & Hastings, Architects.
Sgraffito Decorations by Menconi.

work, and their due discharge of their functions as painters.

The *sgraffito* artist must be correct without losing energy or courage, full of ambition, ever ready to fulfill the task of the moment, at day or night; a man of courage and nerve, a man who does not look for comfort, who does not need guiding and advice, who knows every part of his material, his colors, his composition, his cartoon and the application of every detail, a man able to take successfully the trowel, the float, the brush, the engraving tools, and to use these different implements with the same success and facility.

It has been attempted, in this article to furnish illustrations containing the most valuable information. It is important to appreciate the simplicity and strength necessary for the *sgraffito* "cartoon," or working drawing. Only a draughtsman who is able to compose his subjects with the least number of lines will be successful. This cartoon, when drawn, will be completely worked over with a needle or a tracing wheel. After this part of work medium-grain sand-paper is used to carefully work off all the rough edges. At this point the draughtsman should underlay a second paper, in order to make a replica, for the safety of the original cartoon. From this point up to the executed drawing on the wall, there is nothing new, and the artist and decorator is only advised not to be hasty, but easy and full of good judgment. The work of drawing or engraving must be executed as soon as the plaster is settled enough to receive it without destruction.

A good drawing is of great help, and the success of the work depends on this work. No artist is too great to neglect this most essential advice without disappointment. The work of the "Last Judgment," by Michelangelo, in the Sistine Chapel, gives clear proof to-day of the use of a "pauns," and Raphael was most intricate in this work. We see in every great artist the wisdom of careful preparation.

For the "pauns bag" I prefer the use of burnt newspapers, as paper-black has the most pleasing and perfect color.

The late Stanford White, speaking of the work on the façade of the Buckingham Building, Waterbury, Conn., said that *sgraffito*, properly understood and competently executed, is the missing link in architectural design—the only means which makes possible the harmonious relation of large and small masses and colors. In the music hall it cannot fail to be observed that the comparatively small windows in the façade are brought into admirable relationship with the larger arched enframements by the *sgraffito* decorative treatment.

This building is one of very few in this country where *sgraffito* is used on the exterior, another being a recently built shop on Fifth Avenue, by Carrère and Hastings, where the entire façade is decorated.

The salient feature of its façade, the delicately and beautifully rendered "*sgraffito*" decoration, which as applied to the exterior treatment of buildings in

this country is as rare as it is re-nasence, to decorate, inside and out-exquisite in this example. Rarely side, our buildings in this country.



DETAIL OF A SGRAFFITO
PANEL, FACADE AT 548
FIFTH AVENUE, NEW
YORK CITY

Carrère and Hastings, Architects
Menconi, Decorator

has a more "cheerful" façade graced a city street on this side of the Atlantic. The unique and distinctive effect of this application should make this building an example and a forerunner, showing as it does, where "all who run may read," the great adaptability of *sgraffito* or this sort of work. Often certain members of the design, as in the third-story window-frames of 548 Fifth avenue, may be further accented by laying the surface in greater relief than the rest of the design.

In the building under consideration the color of the ground is a delicate brown for the patterns, and a neutral cream-buff for the outer coat.

Broadly speaking, architecture is vastly dependent for its fullest development upon the allied arts, and of these the arts of *fresco buono* and *sgraffito* may yet be reclaimed from their now almost unknown status to come into a new life, a second





Unaffectionate friend
D. H. Burroughs



The Court of Honor, Looking Toward the Peristyle.
THE WORLD'S COLUMBIAN EXPOSITION, CHICAGO, 1893.

LESSONS OF THE CHICAGO WORLD'S FAIR

AN INTERVIEW WITH THE LATE DANIEL H. BURNHAM

MR. BURNHAM used to trace to the World's Fair at Chicago the beginning of the American city-planning. His own experiences with that enterprise taught him the lesson that co-operation among artists was absolutely essential in order to produce a really great result; and also that success can be achieved only by having one recognized head. The American Academy in Rome was an outgrowth of the intimacies formed among the artists at the Chicago Fair. The Plan of Chicago was another direct result. Mr. Burnham's success in directing the construction at that Fair led to his selection, eight years later, as one of the two original members of the Washington Park Commission, of which

he was the chairman and directing spirit. From that work he was called to undertake the planning of Cleveland, San Francisco, Manila, Baguio, and, as a supreme effort, Chicago. The following interview took place on April 8, 1908, in the rooms he had built on the roof of the Railway Exchange as a workshop for the Chicago plan, to the preparation of which he gave freely not only his time and the ripest results of his experience, but also many thousands of dollars. Mr. Burnham was not talking for publication, as is evident from his familiar way of speaking of his fellow architects, but was recalling the steps leading up to the "Plan of Chicago," preliminary to the writing of the

first chapter of the Report. The conversation embraced various other subjects, which have been omitted; it was taken down by a stenographer and was laid away by the editor of the Report among other notes furnished him by Mr. Burnham and by Mr. Edward H. Bennett, who was present. No attempt was made to cover the entire ground; but enough was said to throw a strong light on the way in which the Fair work developed; and Mr. Burnham's own task of direction is shown to be much more comprehensive than is generally supposed. His tributes to Mr. Codman and Mr. Atwood expressed his deliberate conviction as to the important parts they played in creating the artistic success of the Fair. The death of the former when the work was nearing completion resulted in a loss to this country, which both Mr. Burnham and Mr. McKim often lamented; and their fondness for him was a constantly recurring theme during the progress of the Washington work. The interview should be read in connection with the eulogy by Mr. Peter B. Wight, which appeared in the *ARCHITECTURAL RECORD* for August, 1912.

Charles Moore.

[The narrative in Mr. Burnham's own words follows:]

The World's Fair movement began in 1889, when a temporary organization was made—not a legal one; there was no incorporation. The Chicago people went to Congress, and there fought out the question of the location of the fair that was to commemorate the fourth centenary of the discovery of America. Washington, New York and St. Louis, always opposed to Chicago, wanted it; but the commercial conditions in Chicago were sufficient to carry through the location here.

There was a Buildings and Grounds committee consisting of Mayor Cregier, Edward T. Jeffery, Eugene S. Pike, Robert A. Waller, Owen F. Aldis and Charles H. Schwab, as I remember. They asked me in as a sort of unofficial adviser. They incorporated in the spring of 1890. Happily, politics were not in the minds of the committee, and they

gave no special attention to that subject. Along in July, 1890, James Ellsworth, then president of the South Parks Board (he was very active in artistic matters; he now lives in New York and has a villa in Florence), happened to be in the East. He was on one of the committees,¹ and he went out to Brookline to see Frederick Law Olmsted, whom he asked to come out here, guaranteeing to pay him \$1,000. Olmsted came, and in August made a report. He brought with him Harry Codman,² whom I first saw at a meeting in Chicago. We had already urged the selection of Jackson Park. Olmsted had figured the thing out, and on a sheet of foolscap paper he made a rough sketch—a design of Jackson Park. He recommended this park, and advised that Wooded Island be left as it was. The latter feature was not then acted upon, but Jackson Park was definitely approved as the site.

Then Harry Codman, John Root and I took up the matter. I have in my records a good many of the drawings made at that time. We had a cross-section lithograph of the park, on which we worked. We determined the size of the buildings, and finally their location; we retained Wooded Island, and, at my suggestion, placed a fountain in the vista.

Then came the fight. The National Commission³ demanded that plans and specifications be submitted for their approval. We presented the general plan as we had it laid out, on a piece of brown paper, not rendered at all; and standing up before the crowd, I made some explanations. In November the National Commission adopted the plans and specifications submitted as satisfying the Act of Congress.

In September, 1890, an organization

¹James W. Ellsworth was a member of the Committee on Foreign Exhibits.

²Henry Sargent Codman, a partner of Mr. Olmsted. He died January 13, 1893. Tablets for him and Mr. Root were placed on the Fine Arts building. For the report, see History of the World's Columbian Exposition, New York, 1897.

³Appointed under authority of Act of Congress, approved April 25, 1890, and consisting of two commissioners for each State and Territory and eight commissioners at large. This commission had important powers. There were some clashes with the Chicago Directory, but the work was done mainly by the local body.



MR. BURNHAM'S PRIVATE OFFICE IN THE RAILWAY EXCHANGE.
Over the framed drawing on the book-case is Jules Guerin's original rendering of the Lake-Front Parkway.



SCENE FROM THE WINDOWS OF MR. BURNHAM'S OFFICE.

Overlooking Michigan Avenue, Grant Park and Lake. The play of light and shadow on the water, and the breadth of view were sources of keen delight to him.

had been formed; John Root was made consulting architect, Olmsted consulting landscape architect, and I was named chief of construction. My commission was drawn by Jeffery, then president of the Illinois Central, who acted as chairman of the Grounds and Buildings Committee. He placed everything under my control, and fixed it so that all others must report to me direct, so that they could make no communications save through me. It was urged by men who knew more about organization than I did at that time, that it was absolutely necessary to have a chief.

We shoved on as fast as we could, without having anything definite in regard to the various buildings. Then, late in the year, December, I believe, I grew very impatient, and told the committee that we must have action—get

together a force of men and begin work. There was further delay, but about the 5th of January I got orders. It was agreed that I should select five Chicago architects and five outside architects. I made my selection and went before the committee of seven members, three of whom were in political life. The committee could not come to an agreement, the politicians desiring to keep me from making the selection. Finally Gage put the motion—four voted for and three against me.

The next morning I had a letter prepared to the men in the East, asking them to participate in the work. I had written to them previously, feeling confident that I would carry my point. My plan was to bring together the men of greatest experience. I was forty-four and a half years old, and knew who the

men were. I went to New York and met the architects at the Players' Club; told them they would be expected to design their buildings, and I would guarantee that none of their artistic conceptions would be interfered with; that Root would give expression, of course; but that they would be kept in full touch, and whatever each desired in regard to his own building would be carried out. I found them in doubt and uncertain whether they would take part; but they finally decided to come in.⁴

The five Chicago firms⁵ selected I called on the morning after the decision in committee. First Cobb, then Beeman, each of whom said he would come in. Next Burling & Whitehouse and Jenney & Mundie consented. Adler & Sullivan "did not know"; later they, too, decided to come in.

The Eastern architects appeared on Saturday, January 10. McKim did not come, but Mead represented that firm; then there was Hunt, Peabody, Van Brunt, George Post and Olmsted. Root, who had been in Georgia for three weeks, got in about nine in the morning. He remained in the office while I drove with the visitors to Jackson Park. It was a cold winter day; the sky was overcast with clouds and the lake covered with foam. We looked the place over. Peabody climbed up on a pier and called out:

"Do you mean to say that you really expect to open a fair here by '93?"

"Yes," I replied, "we intend to."

He said he thought it could not be done; but I told him that point was settled. That night the Grounds and Buildings Committee gave a dinner, the whole crowd being present. Gage presided and made a very beautiful speech. Then Jeffery spoke. Then they asked me to speak. I said that in one sense this was the third great American event, 1776 and 1861 going before; and, that as in both those events men had

come to the front and given themselves up to the public, so now the times demanded self-sacrifice. I told them further that the success of this undertaking depended upon team-work. If they worked for the thing as a whole it would be a great success. There was a great deal of response. It was the same old appeal that the Chicago men had been brought up on. From that night on this spirit never failed.

Sunday I did not come into town. Root had asked the visitors to his house on Astor Place, for five o'clock tea. He was in evening dress, ready to go out somewhere. When they were leaving he ran out and saw them into their carriages. The next morning, while the meeting was in progress, Mrs. Root called me up to say that John had a bad cold, but might come in for the afternoon. In the afternoon she called again to say that John had pneumonia. During the next three days I remained with him nearly all the time, night and day. On Thursday Harry Codman went with me to the house, but did not go in. John was breathing rapidly when I entered his room.

"You won't leave me again, will you?" he pleaded.

I promised to stay. Later I went in to see his wife, who was very ill. His aunt came into the room to tell me John was dead; that he had put his hands on the counterpane as if he were running them over a keyboard (he played beautifully), and said:

"Do you hear that? Isn't it wonderful? That is what I call music!" Then he threw up his hand and was dead.

The Eastern men remained for a week working with me. They made one change. Harry Codman's knowledge of formal settings was greater than that of all the others put together. He proposed to carry my fountain back, taking it out of the north and south axis. Then they returned, to meet again in a month. Codman took the plan to Brookline and seriously set to work on exact dimensions, terraces, placing of bridges, and the general laying out of a piece of formal work. We had not given any consideration at all to terraces; but we had

⁴The five firms outside of Chicago were Richard M. Hunt, George B. Post and McKim, Mead & White of New York; Peabody & Stearns of Boston; Van Brunt & Howe of Kansas City.

⁵The Chicago firms were Burling & Whitehouse, Jenney & Mundie, Henry Ives Cobb, Solon S. Beeman and Adler & Sullivan.



A CORNER IN MR. BURNHAM'S STUDY AT EVANSTON, ILL., SHOWING THE MANTEL FROM HIS "SHANTY" ON THE
WORLD'S FAIR GROUNDS, HIS PORTRAIT BY ZORN, AND A HEAD BY SAINT-GAUDENS.



TERRACE AT MR. BURNHAM'S HOME IN EVANSTON, ILL.

Overlooking Lake Michigan, and raised above the driveway donated by him to carry out the plan of a lakeside parkway. Here he dispersed a patriarchal hospitality.

agreed that the Italian Renaissance style of architecture should be adopted for the Court of Honor. The buildings were as distinct from one another as could be. Harry Codman was great in his knowledge and in his instincts. He never failed. He liked to come to the business meetings and occasionally he made an excellent suggestion about organization. I loved the man. Nature spoke through him direct.

The men came back I think about the 20th of February. By that time Beeman's building was begun; the design had been made and the foundations were being put in. They came out in a private car. They brought Saint-Gaudens. After they had returned in January I felt I must have Saint-Gaudens. I wrote to ask if he would come out to give general advice; if he would take a fee and his expenses, and go so far as to indicate what sculptors we should use.

The visiting men came to a breakfast. They were filled with enthusiasm. Charles McKim broke out with a good deal of repressed excitement, saying:

"Bob Peabody wants to carry a canal down between our buildings."

I told him I would agree to it and that we would do it even though it would cost something. That was Peabody's contribution to the Fair. At night this canal was wonderfully beautiful.

Next Saint-Gaudens took a hand in the thing. He thought the east end of the composition should be bound together architecturally. All agreed; and he suggested a statue surrounded by thirteen columns, typifying the thirteen original states. We all hailed this as a bully thing.

We had a meeting a day or two later in my office, the Grounds and Buildings Committee being present. Lyman J. Gage presided. All the fellows, includ-

ing the Chicago men, were there, each with his sketch or sketches; and one by one they put the drawings on the wall. Hunt, crippled by rheumatism, sat on the edge of a table, and told about his Administration Building, with its dominating dome, expressing the leadership of the Government. The scheme as a whole had begun to take hold of us. Then came Post. George Post had a dome 450 feet high. The moment they all saw that dome you could hear them murmuring. George turned around to the crowd, saying:

"I don't think I shall advocate that dome. Probably I shall modify the building."

Charles McKim had a portico extending out over the terrace and made extremely prominent. He did not wait, as George had done, but explained that the portico had been under consideration; but that he would withdraw it to the face of the building. The feeling for unity thus manifested, and the willingness of those two men to subordinate their individual ideas in order to produce a single harmonious effect, will illustrate the spirit which made possible the artistic success of the Fair. Where they led, others were willing to follow.

So the day went on. We had luncheon brought in. Then came the large committee. The winter afternoon was drawing to an end. In the room it was as still as death, save for the low voices of the speakers commenting on their designs. You could feel the thing as a great magnet. Finally, when the last drawing had been shown, Gage drew a long breath, stood up against the window, shut his eyes and said:

"Oh! gentlemen, this is a dream!" Then, opening his eyes, he smilingly continued, "You have my good wishes, and I hope it can be carried out."

Saint-Gaudens had been in the corner all day, never opening his mouth, and scarcely moving. He came over to me, and taking both my hands, said:

"Look here, old fellow, do you realize that this is the greatest meeting of artists since the Fifteenth Century?"

I had a great deal of private work; not as large a business as I have now,

but for that time it was a large business. I had a shanty down at the Fair grounds, where I spent most of my nights. A special metallic-circuit telephone connected with my office. I wanted as great an architect as I could get to help in my own work, and consulted several men, among them Professor Ware. The latter was most emphatic about Atwood,⁶ who had been doing beautiful things here and there. I made an appointment with Atwood to meet him in New York. Charles McKim shook his head about him. Atwood did not keep his appointment. I waited an hour at the Brunswick Hotel and then left. As I was crossing the street a man stepped up and asked if I was Mr. Burnham. He said he was Mr. Atwood and asked if I wanted to see him. I told him I was going back to Chicago and would think it over and let him know. Within four hours after I reached my office Atwood came in. He had followed me out. I told him I would like to have him design an art building, and explained what was wanted. He was a very gentle, sweet man, and certainly he was a very great artist. His Art Building is today in design the most beautiful building I have ever seen. He weighed things to a nicety.

I sent a blue print of the Art Building to New York. They took it to the Players' Club, and from there sent back the most enthusiastic telegram you ever read, saying that it was a triumph of art.

I sent a letter to the governor of each of the thirteen original states, asking for a granite column. Atwood promised and promised to prepare a drawing for those columns, but I never could get it out of him. One day I told him I could wait no longer. He then drew out a drawer and showed me the column beautifully drawn. He asked if I had really made up my mind about the scheme. I asked what he meant, catching from his manner that he was

⁶Charles B. Atwood, who, after the Fair, became a member of the firm of D. H. Burnham & Co. He designed more than sixty of the buildings of the Fair, besides various ornamental features.

holding back something. He said he felt that the screen would be too thin, that something a little more solid and tied-together was needed. He was very gentle, but perceiving that he had in mind a scheme, I asked if he could suggest anything. Thereupon he took out a drawing of the Peristyle drawn exquisitely. It was as if some one had flung open the Golden Gates before me. I told him there was no question about it. I sent a copy of it to New York.

"Confound him, he is right every time!"

Saint-Gaudens recommended French, McMonnies and a dozen others. Frank Millet came in about three months after our first meeting. I had chosen a man named Prettyman, largely on account of his great friendship with John Root. He was to have charge of the decorations; and, knowing that staff was going to be used, he had at once begun to work out a general coloring of staff.



COVERED PORTION OF THE PATHWAY THAT LEADS FROM MR. BURNHAM'S HOUSE THROUGH NATIVE WOODS AND CULTIVATED GARDENS TO THE TERRACE.

There was not even a suggestion of a possible alteration. They telegraphed most emphatically that they were glad of the change.

Charles McKim came out often as did the others. Charles McKim would go into the detail of things with me, and was an inspiration. He spent nearly an entire afternoon looking over Atwood's drawings. He took down the books every little while, looked at them, and then turning to me would say:

He concluded that ivory would be the best color. The crowd came out when Beeman's building was nearly finished. I was urging every one on, knowing it was an awful fight against time. We talked about colors, and finally the thought came, "Let us make it all perfectly white." I don't recall who made the suggestion. It might have been one of those things that occurred to all minds at once, as so often happens. At any rate the decision was mine. Pretty-

man was in the East, and I had Beeman's building made cream white. When Prettyman came back he was outraged. He said that so long as he was in charge I must not interfere. I told him that I did not see it that way; that I had the decision. He then said he would get out; and he did. McKim said Frank Millet would be the man for the place. George Post recommended him and this went far, because I have great faith in Post's judgment of men. So I went down to New York and met Frank at a dinner at Delmonico's—Charles McKim gave the dinner and at the dinner I made Frank a proposition, offering him the largest salary of any one on the staff, \$15,000. Frank said it cost him that to live, and I went before the Directors and told them I thought we should pay that. Of course we could not afford to do anything else. Frank organized the whitewash gang. Turner of New York got up a method of blowing paint on buildings; this Frank adopted, and it is now in common use in car shops.

In a sense the Chicago Fair was the first attempt made in this country to connect landscape with architecture, although of course L'Enfant's plan of Washington cannot be ignored. You cannot find an instance of planning an entire city until you come to L'Enfant's plan; and I believe that the plan of Washington exerted a decided influence in Europe.

In 1894, the year after the Chicago Fair, James Ellsworth asked me to take up the consideration of a parkway in the lake, connecting Jackson and Hyde Parks, getting outside the Illinois Central railroad and doing away with the

unpleasant conditions. Nothing was thought of the North Side then. That is a recent idea. The south end of Jackson Park is about eight miles from the mouth of the Chicago River. A drawing showing a parkway and driveway extending from the city to Jackson Park went to the Commercial Club twelve or thirteen years ago. When that drawing was made, Ellsworth asked me to bring it to his house. He gave a little dinner. George Pullman took fire at once and said he would give up the riparian rights to his property along the lake. There was not a man present who was not more or less overcome by the presentation of the lake park scheme. Armour, Field and others said the thing ought to be done. Armour went further and said that some day it would be done. While I was in the Philippines, Jules Guerin was out here doing some rendering for us, and Ernest Graham had him do that (pointing to the sketch now hanging over the bookcase in his office) view of the lake-front. About two years after I returned Charles Norton came in to suggest that the Merchants' Club take up in earnest a plan for Chicago. We did not start with the lake front, but with the road connecting the different suburban towns with the city, a subject Charles Thorne had made his own. Then the Commercial Club and the Merchants' Club were merged to promote the plan.

Since taking hold of this project we have found the same spirit that carried through the World's Fair. It is marked, persuasive; it permeates everywhere. All are interested and each is ready to bear his part. The men are different; the spirit is the same.

THE STUDIO-HOME
OF FRANK LLOYD WRIGHT



COUNTRY RESIDENCE OF FRANK LLOYD WRIGHT, WISCONSIN.
FRANK LLOYD WRIGHT, ARCHITECT.



COUNTRY RESIDENCE OF FRANK LLOYD WRIGHT, WISCONSIN.
FRANK LLOYD WRIGHT, ARCHITECT.



COUNTRY RESIDENCE OF FRANK LLOYD WRIGHT, WISCONSIN.
FRANK LLOYD WRIGHT, ARCHITECT.



COUNTRY RESIDENCE OF FRANK LLOYD WRIGHT, WISCONSIN.
FRANK LLOYD WRIGHT, ARCHITECT.



COUNTRY RESIDENCE OF FRANK LLOYD
WRIGHT, WISCONSIN. PORCH DETAIL.
FRANK LLOYD WRIGHT, ARCHITECT.



COUNTRY RESIDENCE OF FRANK LLOYD WRIGHT, WISCONSIN.
FRANK LLOYD WRIGHT, ARCHITECT.



COUNTRY RESIDENCE OF FRANK LLOYD WRIGHT, WISCONSIN.
FRANK LLOYD WRIGHT, ARCHITECT.



COUNTRY RESIDENCE OF FRANK LLOYD WRIGHT, WISCONSIN.
ALONG THE ROOFS. FRANK LLOYD WRIGHT, ARCHITECT.



COUNTRY RESIDENCE OF FRANK LLOYD WRIGHT, WISCONSIN. DETAIL OF MASONRY.
Frank Lloyd Wright, Architect.



COUNTRY RESIDENCE OF FRANK LLOYD WRIGHT, WISCONSIN.
Frank Lloyd Wright, Architect.



COUNTRY RESIDENCE OF FRANK LLOYD WRIGHT, WISCONSIN.
FRANK LLOYD WRIGHT, ARCHITECT.



Doorways of an : ~ : Old Whaling Village

By Grace Norton Rosé ~
Drawings by Jack Manley Rosé

THE SWEEP OF THE FREE WIND down its tidy streets; the clean, strong scent of the sea on its doorsteps, and within, the contentment of lives whose wants are attuned to the science of doing without, mark the homes of this austere little sea-coast town from the shaded deep-gar-dened mansions of its inland sisters.

Prosperity came quickly to Edgartown and left it as rapidly, when whaling ceased, on the advent of kerosene, to yield its hard-earned profits. And now the heirs of those bluff old captains reap only the leavings of hasty speculation or poor investment. To their children, the crumbling warehouses and old wharves, the large square homes, with their doorways, bring not the faintest memory of the fine old company of sailing-masters of past affluence, or any of the happy bustle of those years when the little town lived in the annals of the times.

In those days, after a successful year's cruise, an incoming whaler would bring letters from some sea captain, still in the frozen north, giving orders to local builders for a large new house. Square, like those of his neighbors, the house must be, with a "Captain's Walk" on the roof for the household to watch for the first sight of the returning ship, after all the weary years of waiting. The house must lie close to the brick sidewalk, and slightly at an angle, so that one could command a more extensive view down the village street. The rooms must be square, and one for each corner; the spacious north, south, east, west chambers of our grandmothers. Big timbered, the houses stand, defying the sea gales that howl about them; originally white-painted clapboards, or shingles, with dark green blinds, but suffering, in the last score of years, from a painful epidemic of choco-

late-color and salmon-pink. That epoch is also marked by the acquisition of the hideous furniture then fashionable, and many modern housewives in the village rue the time when their mothers sold their rare old mahogany pieces to the then casual summer visitor, albeit it lightened a load of debt or purchased a much needed labor-saving device.

To write of the people themselves, one must have such an intimate knowledge of their daily lives as can be gained only by friendship and close association, but their doorways are there for all to see, and though one never crosses the threshold save as a stranger, welcomed with dignified hospitality, one at least can enjoy the beautiful simplicity of these entrances.

The growth of popular good taste of late years has brought back to the little town a somewhat tardy appreciation of its beauties, stimulated, doubtless, by the enthusiasm of the summer colony and the circulation of current magazines. And there are those remote souls in whom the fire of old tradition and pride of possession has never been allowed to flicker and fail, whose dooryards and doorways present the self-same aspect of sedate usage and nice adherence to the taste of their fathers. Here, you may be sure, the devastating tread of the younger generation, reared in less strict schooling, hard pressed by poverty to less dignified callings, and without the broader scope of their forebears, has rarely been felt. These doorways guard the sheltered lives of now ageing women, administering their meagre incomes with a cheerful consideration of their duty towards their neighbor.

Here and there a house and its familiar doorway has passed into gracious hands of a stranger "from away," where it has

suffered no ill treatment, but seems rather to beam placidly at its fresh white paint and well ordered flower garden. But alas, for those whose late owners possessed neither a gracious hand nor a well trained mind, whose herring-boned paths have been replaced by concrete ones, whose quaint white fences or old box hedges have given way to a passion for ugly modern cement blocks or something still more fantastic.

The wise old property holders of those past days planted sturdy elms and silver-leaved poplars along the village streets, and, though neglected and thought little of by the following generation and their children, they have thriven to be the pride of the present townspeople. Women's culture clubs and a Village Improvement Society have now wrought order out of chaos and after-the-war shiftlessness has changed to civic pride, properly manifested in almost painfully tidy dooryards and annual house painting. If one can forget the years of poverty and decay that stand between the fine old past and the present, when these same doorways stood closed and deserted, while the "backdoor" served as a means of ingress and egress: if one can forget, and now watch them, one by one, open to the gentle influence of years of easier living; one can almost imagine that they stood always thus, brave in their shining paint and glistening brass knockers or silver name-plates. One knows the self-same interlacing of shadows of pale bare boughs in winter, and flickering splashes of light and shade in summer, lay softly across their façades; but one scarcely realizes the blistering paint, the ugly storm doors nailed securely, the rotting doorsteps, and untidy choked growth of the dooryard that those years endured. It was not the ripening of an age that was mellow and endearing, but dire neglect bred of poverty and indifference.

So now, if you enter the little town and go down its quiet narrow streets, scarcely a doorway that is beautiful but what will know it and tell you so. You will not have to search them out, the village abounds in them. They are at last its pride and glory. In the tender misty spring that comes late to the

island, and lasts so wondrously long, awakens the new-found civic pride; and all about the streets are signs of life and spring housecleaning indoors and out. Crimson ramblers are trimmed and trained back on whitewashed trellises, the favorite shrubs are dug about, the doorsteps touched up again, and housewives consult over the painted fences about gay flowers for their tiny front yards. Along the waterfront, the street that runs parallel to the harbor, where the old houses face so sturdily the wild sea gales and cling so closely together for good company's sake, you will note that each fronts the streets at an angle overlapping the other. In the long winter months, when there was naught but waiting among the women, and indoor tasks held them bound, a glimpse down the street to watch if anyone chanced to be abroad afforded them a certain pleasure not to be denied. Then if the adventurous one halted at their doorstep, what joy to speed through the front entry, swing open the heavy door, bidding him welcome, and hastily shutting out the cold and the gale behind him!

The oldest doorway of all adorns a plain square house on this beautiful street and faces the blue harbor. Its rare simplicity has never even been "restored," nor is its knocker a later acquisition. Even its unpainted doorstep has been replaced from time to time with the same thick rough-finished boards, silvering in the sea air to a soft old gray. The beautiful ellipsoidal curve and its keystone above the delicate fan are distinctly charming, with an absolute completeness at once satisfying and pleasing.

Up the Lane one finds another, not so beautiful perhaps, but splendidly restrained in its lines. Here also one notes the fan-shaped transom that Massachusetts has made so familiar to us. The brick path, sunken in places, and moss grown, is the self-same path of nearly a hundred years ago.

If we keep to the Lane, and walk back towards the shore, a large corner house attracts us, and a glance here at this doorway may be worth while, though an older house half way down the side street holds a sweet allure in its shabbiness.



AN EDGARTOWN DOORWAY.

But the mouldings are here so exquisite, so delicately cut, and casting such rarely proportioned shadows! The pilasters have an unusual treatment of diamond lattice. The paneled doubled doors, and quaintly divided transom panes above, are interesting and unique in the village, but the knocker recently added sounds a false note in its one-sided effect.

Once more on Water street, not far from where the Lane has its end, we find a sombre house, which fronts the street squarely and nearly filling up its property frontage, gives hardly a hint of its garden and orchard running to the very water's edge. This doorway and portico has a certain solid dignity, albeit it may seem a trifle heavy and solemn, and the battlement effect on the roof of the porch scarcely commendable. The leaded lights either side of the door carry out a design much used in this type of Edgartown house years ago. The Doric columns are perhaps the most interesting feature of this example.

More pleasing, indeed, is a portico at the other end of Water street; "Down Neck," as it is called. The seats, we think, were added in later years, as they have the appearance of hasty, inexpensive construction out of keeping with the splendidly simple pediment treatment, the pilasters, and the careful mouldings. Here the old foot scrapers are set into the stone steps. The blind doors date back to a day when summer flies and mosquitoes were unthought of in Edgartown.

Doorway after doorway you pass them by, neat, simple, dignified, but closed and quiet. Not even in the late afternoons nor the long evenings of summer will you find these porches gay with folk. This is New England. Why should they sit brazenly on the porch; their neighbors had never done so? It is well enough for summer people who have wide sheltered piazzas, screened and secluded, to do so if they wish, but the natives stay within. Behind bowed blinds in the dusk one may glimpse a serene figure rocking slowly, and noting with interest each passerby; but never could they by any chance sit full in the glare of the public eye, nor consciously embarrass

their neighbors by their regardful presence. Some day, perhaps, these forbidding doors may open and all the inmates of each house show themselves to the idle spectator, but when that day dawns the New England temperament will be no more!

In them is none of the spirit of the one time camp-meeting town scarce six miles away. A town, deserted almost in winter, of gingerbread architecture, whose ugly little cottages bearing weird cognomens stand cheek by jowl, their whole cheap façades open wide to the vulgar gaze. The domestic arrangements, the family quarrels, so obvious, so forced upon one. Here, too, may reign great love, noble sacrifice and sweet peace, but we cannot be judged too severely for our want of sympathetic understanding if we turn sadly away. That anything so architecturally ugly, so removed from any redeeming quality, should exist in a place so fair, on an island so rarely beautiful!

As you lounge about the streets you are quite enthralled by the myriad interesting entrances. Some so quaintly simple that at first you may have passed them carelessly by, wondering that no more thought or expression had been expended upon so important a thing architecturally as a house doorway. These are chiefly found on the low-eaved unpretentious houses of the back streets, and are scarcely more than a flat stone and a plain lintel with a row of little square panes above the heavy door. It occurs to you that their very severity is directly in keeping with the house they adorn, and you gaze again until their contented homeliness quite satisfies you. Even the more pretentious ones scarcely have the intimate charm of these, the homes of the humbler seamen.

Today the history of the building of Edgartown is forgotten lore. A never written chronicle that died with its makers. Lucky is he who stumbles upon some half remembered bit treasured in the active mind of one of the descendants of the old builders. If one consciously seeks for information the paucity will astound and the few conflicting tales bewilder. That the old master carpenters were also shipbuilders is well



"THE OLDEST DOORWAY OF ALL
FACES THE BLUE HARBOR."

known, that they knew their trade is unmistakable, and that their names are obscure save in the limits of their little town is unquestionable. Doubtless they, too, like many other builders of their time, owe much of their skill in doorways to Benjamin's "*Country Carpenters' Assistant*," and their huge-timbered house framing to their boatbuilding apprenticeship. For the massive joists and heavy timbers used in the past, and only slightly modified in the present, would somewhat astonish a suburban builder. The lumber is still shipped direct from Maine, and mill work is unknown, for everything except doors and window sash are made *in situ*.

Edgartown's churches bespeak a prosperous time, and their roomy entrances and exits impress us with the religious principles of the seafaring public of the time. One old church of true Colonial construction, rearing a shapely white spire over the elms, boasts entrances of unusual beauty quite in keeping with the fan windows and delicate belfry treatment. The handling of the doorway pediments is carried out consistently on the façade above, and the salient characteristics of the whole piece of architecture are grave simplicity and Puritan dignity.

This church in old annals is called The Fifth Meeting House, and was erected in 1828, just before the death of Parson Thaxter, who was so active in the history of the town. The First Meeting House, established in 1642, stood on the outskirts of the present town, and was a low log building with a dull red roof, and a doorway more useful than ornamental. It was built chiefly for the edification of the Indians. The burial ground still marks its site, and the staggering tombstones tell briefly many a tale of life lived before 1700. The inscriptions, clearly cut on pure white marble and reddish-brown stone, are as legible today as ever they were.

The other churches of the town boast none of the grace of this Fifth Meeting House. The Anabaptist, organized at a later date, has a rather impressive tall-pillared portico, but it is crowned with so squat and uninteresting a tower, square-shaped and battlemented, as to detract

enormously from the architectural value of the whole. The edifice erected by the Methodist Episcopalians, also a monument to the churchly devotion of an earlier generation, is impressive chiefly through its massivity. The severely plain six-pillared porch, stone-paved and austere, looms hugely upward, supporting an entablature and pediment of good proportion but without enrichment. Perhaps the less said of this church tower the better, albeit it holds the Town Clock, by which authority Edgartown retires and rises. And, sad to relate, the whole is painted a dingy neutral or cold gray color, only relieved, but scarcely embellished, by a shingle roof weathered to a soft silver.

In the days of the First Meeting House the prevailing architecture of the town conformed to the material at hand, and log cabins of elemental construction furnished the homes of the village. Their mud-plastered sides were surmounted with roofs of thatch, and we find on record that common thatch lots of salt hay were used as late as 1680. Chimneys built of mud with straw bond are mentioned as early as 1659, but peat took the place of wood as fuel at a much later date. After carpenters were added to the community shingles were split and hewn out of logs and fastened on with wooden pegs. Later hand wrought nails and iron hardware, painstakingly hammered out at the village smithy, were used in construction. Two doors and their identical iron hinges and latches, of the house of Governor Mayhew, standing no longer, but only lately razed to make room for a more modern cottage, adorn the studio of a keen appreciator of Vineyard lore and tradition.

Many other doorways of beauty and some historical value does Edgartown possess. Daniel Webster doubtless paused on the threshold of many a home in the little town to bid farewell to his kindly hosts and hostesses on the occasion of his visit there; and though the inn where he found entertainment is no longer standing, many a doorway has bid him cheery welcome. Every noted guest that Edgartown has known has found all the important doors of the village open to



J.M. ROSÉ
EDGARTOWN -

"THIS DOORWAY HAS A CERTAIN SOLID DIGNITY."



"ONE OLD CHURCH BOASTS
ENTRANCES OF UNUSUAL BEAUTY."



'HERE THE OLD FOOT-SCRAPERS ARE SET INTO STONE STEPS.'

him, from the days of His Majesty's officers and servants through the prosperous whaling times to the present, where if the entertainment is simple, it is none the less well meant and sincere. The Home Club on the harbor's edge, once the fine square home of a sea captain, receives into its portals and extends its hospitality towards many a Vineyard visitor. The club is progressive and believes in many coats of paint, nicely distributed through the seasons, and if the color-schemes are a trifle lurid, it is due without a doubt to the personal interest each and every member takes in the freshening up and beautifying of this their social gathering place. Behind these doors the wiseacres of the town discuss and settle in theory many a question pertaining to the welfare of the town and its inhabitants, even as their grandfathers gathered about the Stewart stove with its sandbox foundation, in the back of the general store, and talked of their times past or present. Here at least is an open door, and what a fund of local gossip and weighty opinion the receptive minds may gather and enjoy! And here may be obtained an insight into the lives and purposes of the dwellers behind the old portals.

The glory of Edgartown has departed. No longer is the talk of strange seas and stranger adventure. The stakes have dwindled, courage burns with a less eager flame, and days are now spent under milder skies. Few men are left among the inhabitants who recall the departed prosperity of the town; those days of restless industry, the buzzing wharves and teeming warehouses. The homecoming days, with their distribution of presents, neighborly calls and mild fes-

tivities, woke the village to gladness. The incoming whalers all brought something of interest to each inhabitant, dear ones to some, friends and wealth to many, news to others, and even to the growing boys and girls tales to cheer the winter evenings. Outgoing whalers took fair hopes, tears, and many a lad on his first cruise, fired by these same tales to ship under a neighbor's impartial command. The homecomings these doorways now see, no longer bear the same stamp of drama, nor the farewells the same tragedy. Life has worn more gentle channels; the sea calls its men to nearer waters and milder sport and livelihood.

What is the future to be? Do the coming years presage greater prosperity? Will these fine old homes mellow gradually under thoughtful care and preservation? And will this care be left to the natives themselves, who will justly accept and guard the heritage, or must each and every one of these fair doorways pass into the hands of the growing summer colony, an ever-shifting population who will buy and sell as their interest wanes, having no deeper association with the place than many pleasant seasons passed? Wealth desires water-front homes, and already the demand is growing. Slowly enough, but none the less surely, houses are passing into other hands than the descendants of the original owners. Necessity and the dying of the last of the line have generally forced these sales, and not the greed of mere money getting. Will the new owners, as fashion veers, change the severity of these homes to something more compatible with their ideas of summer comfort and luxury, and so lose to the world these symbols of a simpler and sturdier century?



AN EDGARTOWN DOOR.

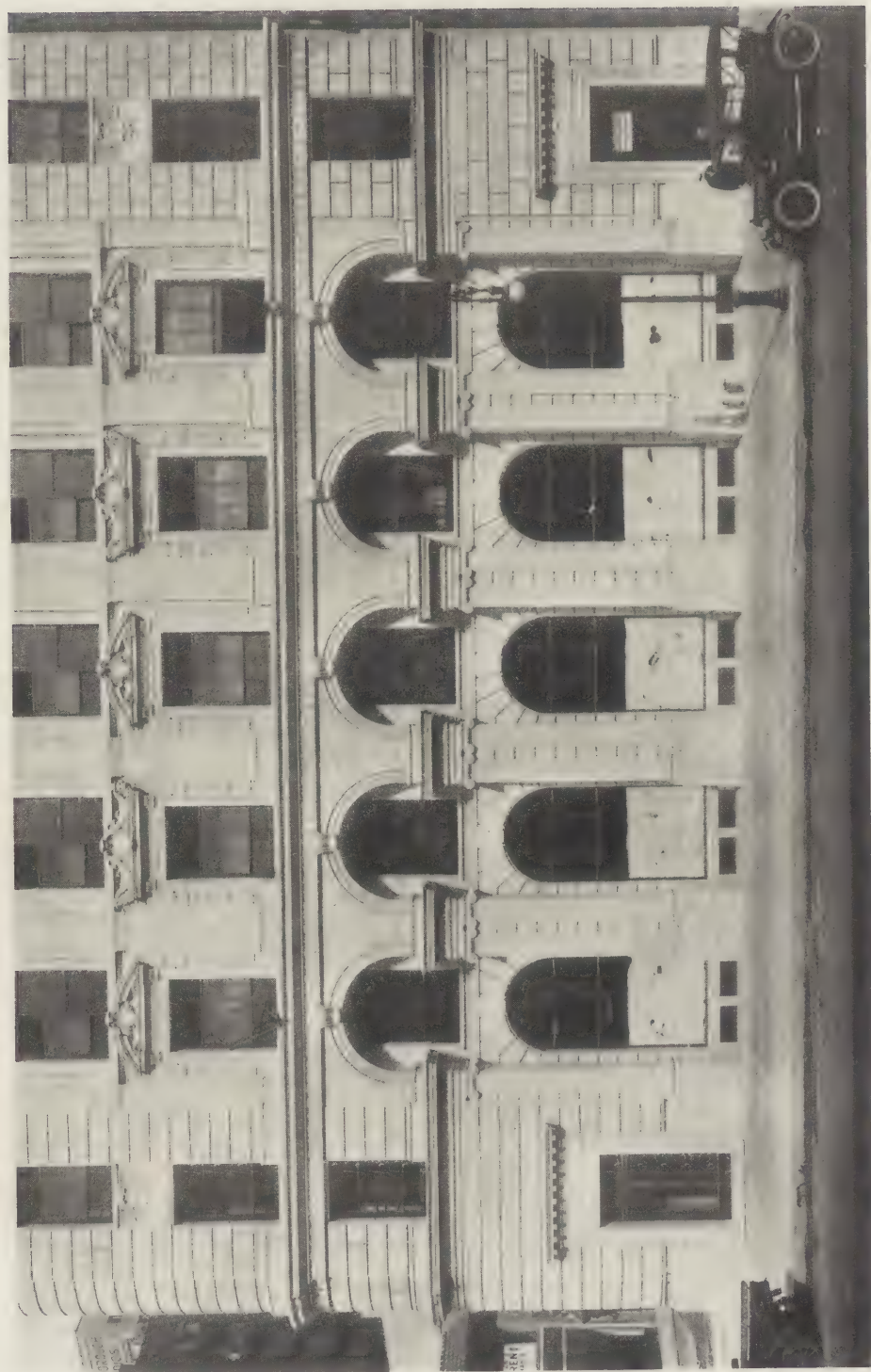


THE BUILDING FOR THE UNITED STATES RUBBER CO., NEW
YORK CITY. CARRERE AND HASTINGS, ARCHITECTS.

PORTFOLIO OF
CURRENT ARCHITECTURE



ENTRANCE DETAIL. BUILDING FOR THE UNITED STATES RUBBER COMPANY.
Carrère and Hastings, Architects.



DETAIL—THE BUILDING FOR THE UNITED STATES RUBBER CO.,
CARRERE AND HASTINGS, ARCHITECTS,
NEW YORK CITY.



APARTMENT HOUSE, FIFTH AVENUE AND 81ST STREET, NEW
YORK CITY. McKIM, MEAD AND WHITE, ARCHITECTS.



A TYPICAL SINGLE AND DOUBLE FLOOR APARTMENT PLAN IN THE APARTMENT HOUSE AT FIFTH AVENUE AND 81ST STREET, NEW YORK CITY. McKIM, MEAD AND WHITE, ARCHITECTS.

NOTE.—The shaded portion represents one complete single-floor apartment; the light portion represents the lower floor of a double-floor apartment. See page facing.



A TYPICAL SINGLE AND DOUBLE FLOOR APARTMENT IN THE APARTMENT HOUSE AT FIFTH AVENUE AND 81ST STREET, NEW YORK CITY. McKIM, MEAD AND WHITE, ARCHITECTS.

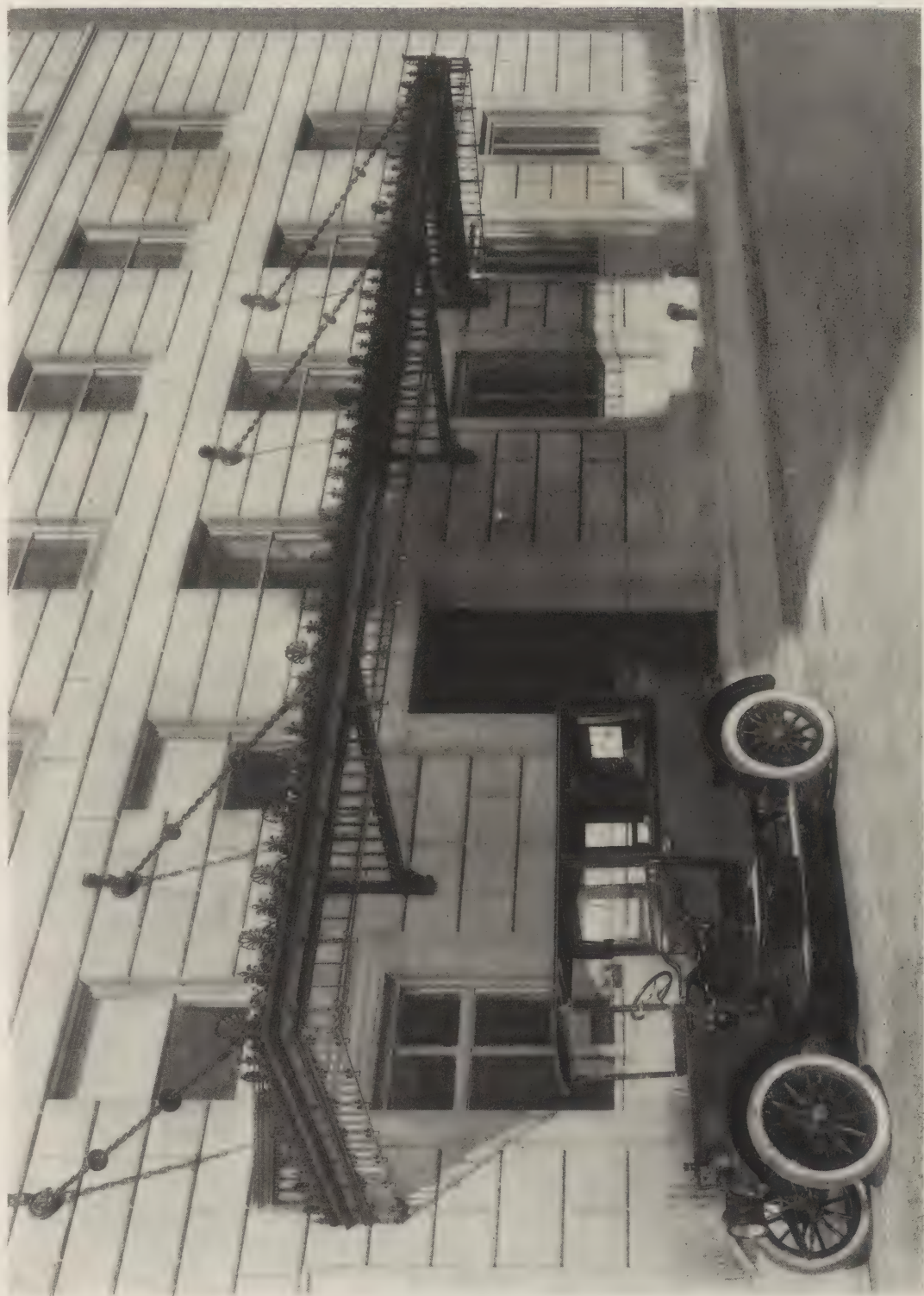
NOTE.—The shaded portion represents one complete single-floor apartment; the light portion representing the upper floor of the double-floor apartment (of which the lower floor appears on the page opposite).



FLOOR PLANS OF A COMPLETE TWO-FLOOR APARTMENT.

In the plans given on Pages 70 and 71 preceding we have two types of apartment—one in which all the rooms are on the same floor, and the other in which the rooms are arranged on two floors, with a private stair, affording every advantage of a private residence. The plans above show another arrangement of a double-floor apartment, which is different from the "duplex" in that no rooms rise to a height corresponding to two floors. In such an arrangement the second floor, devoted to bed-rooms, etc., is a mezzanine. In the type of plan shown here, each apartment is a unit, occupying a large floor space on one floor, or less space and the height of two floors.

FLOOR PLANS, APARTMENT HOUSE AT FIFTH AVENUE AND 81ST STREET,
NEW YORK CITY. McKIM, MEAD AND WHITE, ARCHITECTS.



ENTRANCE DETAIL—APARTMENT HOUSE, FIFTH AVENUE AND 81ST STREET,
MCKIM, MEAD AND WHITE, ARCHITECTS.
NEW YORK CITY.

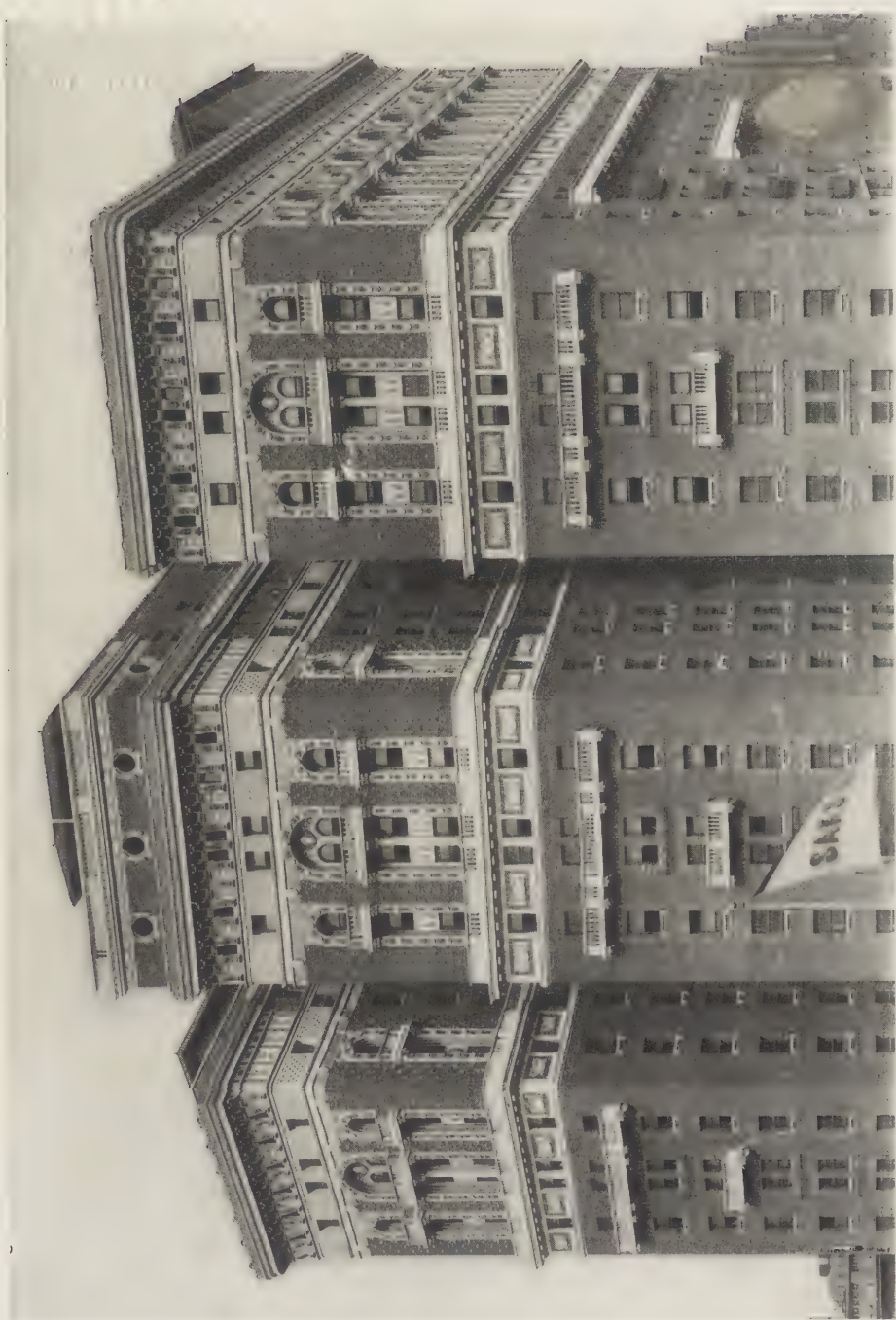


THE EMMETT BUILDING, NEW YORK CITY. J. STEWART BARNEY AND STOCKTON BEEKMAN COLT, ARCHITECTS.

A unique feature of this commercial building is the use of upper floors for owner's residence.



THE McALPIN HOTEL, NEW YORK CITY.
F. M. ANDREWS AND CO., ARCHITECTS.



DETAIL OF UPPER STORIES—THE McALPIN HOTEL, NEW
YORK CITY. F. M. ANDREWS AND CO., ARCHITECTS.



BRICK AND TERRA COTTA DETAIL—THE McALPIN HOTEL.
NEW YORK CITY. F. M. ANDREWS AND CO., ARCHITECTS.



BRICK AND TERRA COTTA DETAIL—THE McALPIN HOTEL,
NEW YORK CITY. F. M. ANDREWS AND CO., ARCHITECTS.



DENTAL OFFICES, BRIDGEPORT, CONN.
SKINNER AND WALKER, ARCHITECTS.



DETAIL—DENTAL OFFICES, BRIDGEPORT,
CONN. SKINNER AND WALKER, ARCHS.



ENTRANCE DETAIL—DENTAL OFFICES, BRIDGE-
PORT, CONN. SKINNER AND WALKER, ARCHS.

DO ARCHITECTS READ?

A GROUP OF INTERVIEWS

BY SAMUEL HOWE



PART II.

The group includes the opinion of Messrs. Ralph Adams Cram, William L. Price, John M. Howells, Walter Cook, Henry Hornbostel, Charles W. Stoughton, Benjamin W. Morris, Bertram G. Goodhue, Professor Hamlin, Breck Trowbridge, Donn Barber and others.

CONTINUING the presentation of the subject in the former issue, it may be of interest to note that when, some six months ago, I undertook of my own volition to secure the opinion of architects relative to the charge that they were non-readers, I failed to realize how serious a business it would be. It promised to be an interesting excursion into the busy life of the man in general practice, a stimulating challenge, but it soon became a serious affair. For a time it even threatened to become something of a tragedy. Mr. Hewlett said architects were reluctant to talk about themselves.

A publisher had said, "architects don't read," voicing it so defiantly that there seemed nothing else for it. "Architects don't care" is doubtless what he really meant. His contention being that they were picture-lovers, ignoring the printed word, delighting in the frequent presentation of their own ideas and ideals, and concerned with little else. Callous of criticism, indifference to description however timely and informing, too occupied or too indolent to examine further.

This audacity led me to seek for a response worthy of the occasion, not that the opinion held and expressed so vexatiously was worthy a reply for its own sake, but I felt sure that he spoke for others who might unconsciously be misinformed and that here was a chance to set them right, and to let the non-reading student learn what the "big fellow" found of service.

Mr. Ralph Adams Cram was naturally among the first to whom I looked for a scholarly reply, not simply be-

cause of his exalted position as Church Architect and Author, nor because of the gracious homage to ancient precedent, tradition and symbolism which is so frankly acknowledged by his designs wherever we look, but because with it all he exhibited so broad and liberal, so stimulating and encouraging an ideal with which to influence the life of the architect. And I remembered that the Bishop of New York said during the last few weeks addressing the S. Andrew's Brotherhood, "If you want anything done—find a busy man and he'll make time to help you."

"After having read over what has been said on the question: 'Do Architects Read?' I find very little that I can say except in the line of repetition. With a few minor exceptions I should be disposed to indorse in detail everything that Mr. Arnold Brunner has said, and much that you have quoted from all the others you have interviewed. All these demonstrate pretty convincingly that the question itself was in a way a gratuitous one. Architects do read, and probably more wisely and widely than almost any other class of men. They have to. If they are real architects they are expressing through their art, not so much their own personal predilections and their own personality as the essential elements in whatever lies behind the thing they are trying to put into material form. The architect, in the best sense, is the spokesman of society, of the best that is in society, not the worst, and he can't possibly discharge this duty unless he is intimately familiar, not alone with contemporary life, but with all the important

tendencies or accomplishments that are its foundation.

"Of course, for my own part, I read all the time, or rather every minute of time I can get from office duties and social obligations. There are some books I read every year, whatever happens; for example, Stevenson's 'Treasure Island,' Chesterton's 'The Napoleon of Notting Hill,' Meredith's 'The Shaving of Shagpat,' Sir Thomas Browne's 'Religio Medici,' and Henry Adams' 'Mt. St. Michel and Chartres.' Of course, I read all the other things of Chesterton's, new and old, for he seems to me about the most clear-sighted and stimulating writer there is at the present time.

"Then there are the modern philosophers that I keep by me constantly. Bergson, first of all, and then Eucken. St. Thomas Aquinas, Hugo of St. Victor, and St. Bernard also furnish good sustenance, and I can always fall back on Browning, Shakespeare and the Elizabethan dramatists, particularly Kit Marlowe. Natural science doesn't interest me at all, and I seldom read it, except for the purpose of amusing myself over its bland assumption and its more than mediæval dogmatism. Of course, I read everything I get hold of on mediæval history, literature, art and religion. I have to read Galsworthy, Arnold Bennett and H. G. Wells, not because I agree with them, for I don't, but because they represent so clearly most of the tendencies in modern civilization to which I am violently opposed, particularly Mr. Wells, and I like to know what I am fighting against. As a matter of fact, this particular author, apart from his constructive theories, is an enormously useful man, since in 'Ann Veronica,' 'The New Macchiavelli' and 'Tono Bungay' he gives the best possible showing of the weaknesses and follies and general abominations that are so intimately mixed up with what we are pleased to call contemporary civilization.

"Novels I read almost not at all, unless you can call Stevenson and Kipling novelists. I find practically nothing in the American illustrated magazines that I care about, as they seem at present to

be devoted pretty exclusively to fiction and 'travellogues.' There is a good deal in the *Atlantic* that I enjoy, and *Current Literature*, in spite of the fact that it is wedded to the most beastly system of spelling devised by man, is invaluable as an indication of what is being read everywhere. Some of the English quarterlies and reviews are also useful, particularly the *Hibbard Journal* and the *Contemporary*."

Recalling with delight the quality and importance with which one modern philosopher of the City of Brotherly Love always accorded problems of daily life, I was grateful for the response from Mr. Willitt L. Price, whose quiet banter and gentle railery is refreshing. He writes:

"In regard to my reading and its relation to architecture, I have, of course, read many architectural books and articles. I have pawed over in writings, in pictures, and in travel much of the scrap heap of the past. I have, as most young men do, hoped to take up the tools of the mediæval and Renaissance craftsmen, and I have, I hope, absorbed something of their knowledge and spirit. But I feel that architectural history is much like other history which, as Mr. Dooley says, is a kind of post mortem examination. It tells what architecture died of and, like Dooley, 'I want to hear what a counthry lived of, and not phwat it died of.'

"If the writers on architecture would or could tell us rather why the men of the past did things than what they did, it would help more.

"As it is, I do not find myself reading much archaeology. I read a thousand words of the architecture of the present to one of the past, for all vital literature and even news of to-day has to do with the architecture of to-day if it is to be real live architecture.

"I read novels and plays. I read scientific discourses of the daily achievement of living men. I draw inspiration from their strength and warning from their weaknesses.

"I conceive it to be the business of an architect to crystallize the thoughts and habits of his own day into whatever

forms of usefulness and beauty lies in crudities, refined as may be by passing him and in them, to express even their through his intuitions. I do not believe it to be his business to consciously build up monuments to himself or to the glory of the past.

"If there is one book of the day that I should recommend to my brother architects, it is 'Bergson's Creative Evolution.' If they can grasp its message and profound truths, and if they are not overlaid and bound by accepted forms, then we may hope for an American Renaissance, which is not a grave robbing resurrection."

Mr. James Gamble Rogers says: "We don't read enough; that's the trouble of it. And in our work we are too anxious to be novel, *to be original* instead of devoting our attention conscientiously to find the best possible solution of the problem. I think we are at times unappreciative of the true importance of cultivated unprofessional opinion either expressed verbally or written. It is not wise to depend wholly upon what our brethren tell us. The architect's criticism, by virtue of the training, is too apt to follow the viewpoint that has already been covered by the designer, whereas the intelligent man of the world thinks in a different line and is often quick to grasp the essentials suggesting a thought entirely different from that held by the architect. Stimulated and equipped from innumerable sources he is superbly qualified to make his own estimate and express it in his own language.

"You ask as to the influence of reading upon the student of the Beaux Arts. There isn't enough of it; that is why in many ways I feel it desirable for a student to extend his studies to the National Academy in Rome, as the successful students usually do. There he has both encouragement and time for reading."

Mr. John M. Howells, the son of the distinguished dean of American literature replies to the interrogation:

"If this question means general reading—an individual cannot answer for his class—it is not more possible to say whether all architects read, than all

statesmen or all locomotive engineers. But I suppose the question really is whether architects read the current architectural reviews. At least it is the question in this form that I have at times discussed with editors.

"I am afraid my answer must be no, and my reason is the practical impossibility of doing so given the conditions of pressure under which the American architect works. By this I mean that it would be impossible to read the letter press in from one to five such reviews regularly; such matter certainly gets read, but 'without intention,' because one happens to have it in the railroad train. Though this is an unfair and slighting return to the editor who has tried to create an interesting series of critics or a department dealing with some particular work. Conditions of architectural practice vary somewhat in the different American cities and this is due to the difference of pressure under which the architect works. My only experience is of a New York practice, where perhaps the pressure is as great as anywhere.

"This pressure diminished to what seems to us an absurdity in certain European cities. Not long ago I received a card from an old friend practicing in Paris. This man had been energetic and successful in the national school fifteen years before, but his office hours as recorded on his engraved card today, read, 'Thursdays from 9 to 11.' One can imagine an American client who might take a fancy on a Friday to begin a building project, being told that his architect could see him the following Thursday! Such an architect may read, but I fear the American architect in practice reads little or not at all.

"But does anyone read today? Certainly very few, compared with the general habit of reading of, for instance, the Victorian times. Articles or serials by authors in the public eye, manage to snatch a precarious public, using as a catpaw our monthly magazine—this public being largely our women.

"Beyond this what?

"How many of us even know of the epoch making publication now being started in America with the moneys of

a 'certain rich man'—a vast, and some day to be complete set set of English versions of all the great ancient classics, some never before translated, and undertaking unheard of in size and importance.

"Will many architects read them? I think not. Who will? I don't know."

I was so fortunate as to be received by the distinguished and worthy president of the American Institute of Architects, Mr. Walter Cook. He spoke very quietly.

"As I was saying the other day this is an age of undue specialization. Reading doubtless does much to increase the mental horizon of the architect by broadening his interest and extending his knowledge to a far wider and ever-increasing area. For instance and as an illustration comparing him with other workers in kindred endeavors, I remember how it was at the Beaux Art school years ago when many of the students there visited the concerts and lectures on music. The question then engrossing Paris was—Wagner, Wagner the iconoclast, dazzling with his brilliancy. 'Was this man a genius? The city was wild. Students crowded the halls. You see Wagner was the first musician to search in a book of philosophy for inspiration to bring music to the very soul of man. The audience would contain ten architects to three or four painters and sculptors, or in this proportion. There were doubtless, and for that matter continue to be, more architects interested in painting and sculpture than there are men of the latter art skilled and inspired by architectural knowledge and interest.

"And this specialization leads to such questions as this: 'What are you?' 'I am a specialist on hospitals.'

"And you? 'Oh, I design apartment houses.'

"And to what do you devote your time and attention? 'I come under the sway of the 'cosey corner cult!' and such like vanities. And so it goes.

"We want all-around men, the times demand it. You remember that Mr. Mabie said a few days ago, 'The province of the twentieth century is neither to produce laughter nor tears, but to make people understand.' I view, there-

fore, with considerable interest any attempt to make the architect broad, scholarly and up-to-date, and equip him for the world. When you ask if he reads, I say yes, more so than does the musician and other artists, and he reads that he may be conscious of the great movements of the world, and that he may not forget that after all he is a man of the world, devoting his energies to serving humanity instead of being as it were merely a tool,—clever, bright, able, as you will, to adapt himself to the ever-varying calls of the different crafts—but still a tool to produce a building."

"Hastening my steps I turn to a man well known for his big work of the modern school, his bridges, monuments, academies, hospitals and other wholesome and inspiring testimonies to the breadth of his service for humanity, Mr. Henry Hornbostel.

"I think it wise to read what all architects and all critics say about the development of buildings, gardens, decorations and sculptures—digest it all, if possible—and with this as a good foundation proceed to go them one better when the opportunity offers," laughingly says Mr. Henry Hornbostel, just returning from one of his weekly visits to Pittsburgh, where he is endeavoring to give tangible shape to one of Mr. Carnegie's dreams and ambitions by building an institute for technical training.

"Of course, the architect should persistently read that which stimulates his imagination and which makes for the broadest appeal. He should absorb the philosophies of the French, study Voltaire's dictionary, the dramas of Moliere and the wonderfully imaginative and poetic writings of Maeterlinck. And by way of diversement he should read general history, geography and science to develop his imagination—not simply the history of architecture—he should undertake the reading of scientific literature which today is so popularly presented in the current magazine. I read with pleasure and profit the *Scientific American*, its informing articles, everyday subjects, dyes, cotton, rubber, the latest whisper from the world of electricity and the intangible mysteries of chem-

istry. I am immensely interested in the history of Corea, India, Yucatan and the Orient—the wondrous Orient.

To Charles W. Stoughton, deeply engrossed in his ambitious scheme for the Christianizing of the "heathen Chinese" and by an ambitious scheme for the building of a university at Canton, I naturally turned for something of importance. He said: "As more well-bred men enter the profession of architecture more members of the profession may be assumed to be readers—not for shop knowledge, but because they have the love of literature and the habits of scholars; their reading is at once a relaxation and a natural exercise of their customary life, and it takes its part, however unconsciously, in their work as their work reflects their outlook upon life. Reading is a stimulant for any professional man and all men in this pushing materialistic time need a stimulant to counteract the brutishness that is invading the business world. I have today bought a copy of the *North American Review* for the article by Le Gallienne on 'Re-reading Walter Pater.'"

Another prominent man (whose name, unfortunately, may not be quoted) said: "To the student of architecture I would say: Read Gaudet, Professor of Theory, Ecole des Beaux Arts, Violet-le-duc; J. F. Blondel, '*De la Distribution des Maisons de Plaisance*,' and, of course, Vitruvius; but do not read to take seriously Art Essays of Ruskin or Whistler. Absorb all that is possible from Fergusson."

How thankful we should be for the publicity of the streets. But for this I might not have had the opportunity of learning just what Mr. Benjamin W. Morris had to say in response to the question. He spoke with considerable feeling, saying:

"I have been most interested of late in the reading of biography of great men like Sir Christopher Wren and Inigo Jones, for it is of interest to note how that leads to the understanding of the main idea of composition and shows the direction of the main growth and enables us to cut away the weeds. It is interesting to see how the lives of our own men compare with these worthies. Look, for instance, at the quality of work done by

Mr. Charles A. Platt—how his experience as a landscape painter and etcher, as a designer of scenery, stands him in good stead. Look again at Wren, his prodigious and inventive wit, his triumph with geometry and arithmetic, his taste for elegant literature and fine arts, his inventive faculty, his astronomical instruments, and his fascinating Latin address. Yes, this man as a boy of fourteen was an Oxford scholar; he was a landscape painter familiar with ancient buildings, and his 'Parentalia' notes on Greek and Roman buildings, and his Christianizing of the classical fables of the Signs of the Zodiac are not likely to be forgotten.

"I enjoy reading of Inigo Jones. See the work he did, the picture galleries, theatres, churches he designed and the gardens piazza square, and grottos and porticos for which he is responsible. He was also well-informed in stage entertainments and in the mystery of the masque.

At Worcester College, Oxford, they show you his copy of Palladio (folio edition of 1600), the margins of which are rich with notes, sketches, dates, showing how when Inigo was in Rome he compared the drawings with the ruins. The same volume notes the stairs at Chambord, France, details at Tivoli, at Naples, at Vicenza, so that he carried his Palladio with him and read it earnestly."

Mr. Bertram G. Goodhue has evidently looked into the face of the subject from many sides, perhaps into the very soul, for he says: "The architect must be a gentleman in every sense of the word, a well-read man, an Oxford man were it possible, with Latin and Greek;—articled for two years at any rate, and paying for his indentures." This industrious enthusiast undoubtedly believes in the poetic side of architecture, and in music as the coming means of human expression. He responds heartily to the charm of an old cathedral. I have heard him speak with definite tenderness of the great towers and spires of Chartres, the mighty flying buttresses, the vaulting of the interior, the superb coloring of the stained panes, the sculptures of the

northern porch and the grand composition of the western portals, saying, "And when you have sketched and measured it all, every inch, stone by stone, and photographed it from a distance and in detail you haven't got it, for there still remains an immeasurable, intangible something, intensely moving to the visitor, a fairy story in stone, a sculptured epic, a veritable living drama that illustrates vividly the scenes of an ancient religion with a magic enchantment hard to understand. You remember Dante defines sculpture as 'visible speech.' Yes, and you may read all you can about it and it still it defies you! It is the manifestation of the mind of a man industriously struggling with an idea, for even the most skeptical must admit the intimacy of the building problem in that thought-compelling age."

Although Professor Hamlin's attention is pretty well absorbed in his duties at Columbia University, lecturing and writing on the history of architecture, keeping, as it were, one eye upon the Orient where a vigorous child of his fancy, the Roberts College, is endangered by the competing forces at the Golden Gate; he found time to write as follows:

"Do architects read?" The question is general. No general answer can be given, if by 'reading' is meant habitual, systematic reading or the cultivation of literary and scholarly habits. Some architects read and some do not, just as some play golf and others do not. The reading habit is a question of tastes, aptitudes and opportunity. There are educated architects, half educated architects, and architects, so-called, without any education worthy the name. There are architects whose scanty practice leaves them abundant leisure for reading, which some among them employ to the best advantage; and there are architects whose abundant practice leaves them but scanty leisure or none at all, yet some even among these manage to read a surprising amount of good literature, in spite of their crowding duties.

"The practice of architecture in this country is a strenuous and absorbing occupation; more so, perhaps, than anywhere else, because in general, building

operations are carried on more rapidly here than elsewhere, and the same amount of work, done in less time, exacts of the architect a busier activity than where the work is begun and continued with less feverish haste. Probably the majority among us are not 'reading men' in the higher sense of the term. But the average of education and intelligence among American architects is high and steadily rising, and with it the interest in other reading than the periodical press on the one hand and the purely technical reference literature on the other. If the prevalence of reading is to be gauged by the number of writers among us, the increase has been notable in the last few years. The man who has the taste for reading will make time for reading, if only by improving odd moments and reading by snatches. I have myself thus at different times during trips on the 'elevated' up and down town and occasional half hours, read Motley's *Dutch Republic*, Locke's *On the Human Understanding*, Spencer's *Education*, parts of *Paradise Lost* and of Dante's *Divine Comedy*, besides a number of lighter works—a sufficiently varied pabulum, it must be confessed, but alike profitable and enjoyable. Summer vacations and trips abroad have given opportunity for considerable consumption of books of travel and fiction, both English and French, and from time to time, I have enjoyed making or renewing acquaintance with various classics of English and French literature, both poetry and prose, ranging from Chaucer and Racine to Havells and Pierre Loti, and for keeping up my Latin, on Horace's Odes and Satires. It has all been fragmentary and more or less desultory, but not unprofitable. For my work of teaching and writing I have read 'at' a great many works that I have never read through—I have never read all of Gibbon's *Decline and Fall*, or of Perot and Chipiez' *Histoire de l'Art l'Antiquité* or of Gaudet's *Théorie*. But one can become well acquainted with such works and derive an immense benefit from them without conning them from cover to cover; and such reading has, I am sure, helped to keep me from deep pedagogic ruts, and from

narrow views and fanatical partisanship as to period and styles and tendencies.

"I am sure the increased cultivation of the reading habit—the reading not merely of books on our own profession, but of the great classics, the poets, the thought-provoking books of our own time as well as of the past, will benefit our profession and our architecture by its broadening and refining influence on the mind and taste. I cannot help thinking that the vitality and sanity of our best modern American architecture is due, at least in part, to the receptive open-mindedness of the architects to the enlightening influences which come in to the mind through reading."

Mr. Breck Trowbridge, President of the Architectural League, led me to the bookcase and pointed to a serious collection of authorities. He said, "These are the volumes that architects read: Gaudet's *Elements et Théorie de l'Architecture*, Jules Comte's *Bibliothèque de l'Enseignement des Beaux-Arts*, which contains special volumes on composition, tapestry, mosaic, glass. Blondel, which, by the way gives among other information things which we ought not to do, a naïve dissertation on the delicate subject of taste, in which he shows how we have borrowed from the sensations the term 'taste' in architecture to express the judgment we form of things not subject to a certain rule or susceptible of any evident demonstration. This metaphor is the more true as it appears what 'taste' is.

"It is not true to say that architects avoid reading. They must read to get anywhere. Still, it all depends upon the man. He may start out to read, say upon vaulting or decoration—I care not what it is, the subject opens out like a fan, one book leads on to other books, and so it goes. Certainly he must accustom himself to logical and exact reasoning; he must cultivate his taste and natural tendencies by drawing and possibly modelling, which is still but drawing. Gaudet says the architect is a man artistically honest and skillful in construction."

Mr. Walter Burley Griffin, the architect for the new Capital City of Australia, writes from Chicago:

"How architects read at all, rather than what they read, is the important phase of your subject as it appears to one in active practice.

"As a student I tried to lay broad foundations in general reading on which I expected to continue through life, but the demands of immediate interests from the beginning of practice have practically absorbed all opportunities.

"It goes without saying that one must keep in touch with the progress of his profession, up to the day with architecture, to say nothing of landscape architecture. The rapid strides since school days have all but transformed entirely the technical data then at hand. For instance, the theories of physics have been largely worked over in the last fifteen years, reinforced concrete construction has been introduced and developed in that time and plants of Asiatic origin have been supplementing American and supplanting those of Europe as our landscape media.

"To meet these demands, it has seemed necessary to me to keep in touch with practically all periodical literature of the business.

"Next to technical efficiency, the essential necessity, as I look at it, is a man's training as a citizen wherein, granted an initial acquaintance with historic developments of politics and economics, one's usefulness is best furthered by periodical literature whereby he can develop and check his observations and find courage for his principles in studying their diffusion and adaptation in the modern world. It is perhaps more difficult to guide one's course along these lines of current literature of which it is impossible to see even an insignificant fraction of all that is published. Running through newspapers and magazines of the library, club and home tables is all too cursory. The daily newspapers alone are to be looked upon as superficial and the weekly and monthly publications are too apt to be, when serious, narrow and partisan or dominated by concealed motives. Moreover, the newspaper reading, unless consciously and vigorously disciplined, will about consume all the spare time which, with the suburbanite, such as myself, is

confined to the transit periods morning and evening.

"For me the best substitute is Louis F. Post's '*Public*,' published weekly in Chicago, which I have carried in my pocket for thirteen years. '*Current Literature*' and similar reviews are my present chief guide to the intricacies of the field of magazines and books, and these allow time to carry a volume now and then as a substitute for the newspaper on the train. This course has rendered possible perhaps one novel a year and, may be, half a dozen works selected from other fields of literature, an achievement only attainable when my program as outlined is pretty strictly adhered to.

"As to what these selections are, it may be definite enough to class them as related more or less to the program of the principle of democracy in all human activities, whether social, industrial, ethical or esthetic."

Mr. Donn Barber asks:

"What do you understand by reading? Of course you mean the writing that by way of courtesy may be called 'modern literature'." And then, by way of enlivening the occasion by a counter-irritant, he asked in a facetious manner: "What do you think yourself? How does it strike you? Do you read?"

He said: "Of course the architect reads; he reads the signs, demands and opportunities of the times in which he lives and works. He is certainly callous of lay and ill-informed criticism, jealous of professional rights, yet stimulated by suggestion of men worth while. The worth while man gets an audience and holds it."

"What has the French School taught?" I asked. "It has given invaluable lessons in the art of grasping the problem as an entirety, and reading came into the study. Just what I mean is very well shown by the closing words of instruction which were recently given by the senior professor at the school in response to a student returning home. Perhaps thinking there might yet be some secret 'tip,' some talisman reserved to the last moment, he said: 'After spending six years here, part of the time in the school, studying and travelling under

your advice and part of the time working under your personal direction in your office, I am going home. Can you not give me, as it were, a parting message which may guide me in my work in the future?' 'Yes,' replied the professor after some thought. 'I think I can. Forget all that you have learned here, all that you have seen, for much of this has been academic and preparatory, a matter of training to equip you to draw and to think, and study the problems of your own country as they arise, view and attack them with an open mind, with firmness, directness and skill.'

This collection of opinions is more than usually interesting not merely for its own sake, but also for the evidence it gives of the trend and development of the mind of the architect and his view of things in general. It marks a stage different and, perhaps, I may say higher if indeed not cleverer than any we yet remember to have seen. It shows a mellowed, humanized architect, more fully equipped and modernized, but true still to the exalted ideals of his art and it shows him no less true as an observer and recorder of life, it shows also the books he considers worth reading and the greater books within the domain of the literature of power.

It is among the signs of the times that the architect devotes an even larger share of his attention to matters that concern humanity than to exhausting his energies in the vexed academic questions of proportion, ratio, equation, or even the fascinating search after symbolism, rhythm, logic or the engrossing study of style as such, or the ever shifting adjustments of building material, labor demands and the laws of the Building Department. No. He is engaged with the bigger things of life. To him mankind is brother as well as client or craftsman, and he is more concerned with the satisfying of their daily needs than with the erection of a monument to himself.

With Joseph he can say, "let us build granaries instead of monuments."

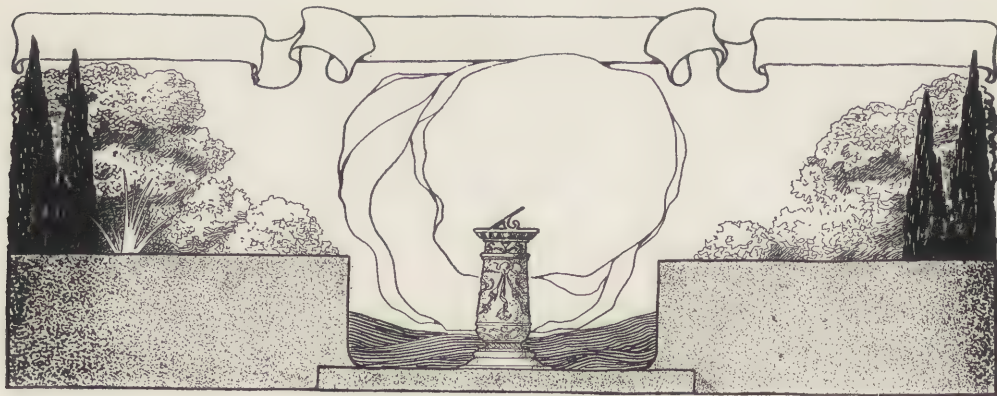
And it is to qualify him for this larger work that he is essentially and by preference a reader.

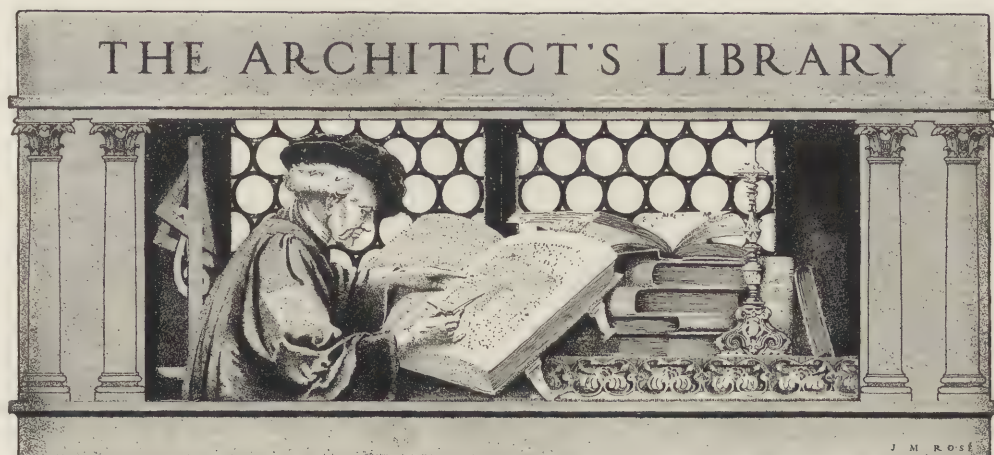
Ever alive to the latest industrial achievement, conscious of the dangers, that await those who sink into a rut, he welcomes the stimulating influence of new inventions and new materials so vividly pictured in the advertising pages.

And it is also among the signs of the time and recognizable even at a glance, that in this he is influenced by the old masters; to him the Orders are ever present, and the rich low perfume of the Orient. The old masters still live, still shape our sky-line, dominate our detail, inspire and ennoble our buildings, but so subtly, so insidiously is their presence felt that it is not always discernible to the lay mind.

For the theatre of the architect's realm there is no dress rehearsal or 'curtain call,' neither drums, nor trumpet flourish, but few pretty speeches and no grand parade. Naked his giant towers arise without a friendly 'drop' granting a momentary shelter, hiding experience or alteration; no mystic light to give fantantic coloring; yet to the painter and sculptor does he often assign places of importance holding them in the limelight.

It is said that the lawyer settles disputes, that the surgeon repairs the body, that the church is deeply concerned with the hearts and the feelings of mankind, invoking a spiritual reverence for religion, that just now huge fortunes are made by the financier while the architect receives a mere pittance for his pains, while possibly he is the most satisfactory of the world's workers, furnishing daily employment to thousands and bearing more than his share of the great burdens of the world. Presiding at a court ever in session, enforcing laws which involve complicated questions wherein he renders important decisions without acclaim or fuss, a welcome visitor at the palace of kings and yet never very far from the workman, a custodian of the rich heritage of the past, yet ever conscious of the claims of the present, a steward of great promise, opportunity and privilege, a High Priest of form yet ministering to the spirit the mysticisms and ideals of the time, often modest of demeanor, shunning the lime-light, and the question is not—'Does he read?' but 'What dare he avoid reading?' in order to qualify for so serious a stewardship."





It is the purpose of this department to keep the readers of the "Architectural Record" in touch with current publications dealing with architecture and the allied arts, describing not only literary, but practical values.

"Tapestries, Their Origin, History and Renaissance." By George Leland Hunter.

To hold his own today the architect finds a constantly increasing demand upon his activities in the direction of interior decoration. While there are in this country today a great many specialists in this branch of architecture, where there were none twenty years ago, the general practitioner, nevertheless, if he wishes to work in intelligent and effective unison with the decorator, will find that no study of "periods" or decorative accessories will be amiss on his part.

Perhaps it is safe to say that by far the greater part of the stupidity and banality of American architecture of the '80's can be traced directly to the fact that the architect was architect only, and did not extend his interest or activity beyond the actual building of the house. Hence the bitter variance of architecture and decorations, and of architecture and furniture which obtained in that dark age of esthetics in this country. "Architects" were little removed from "Builders," and "Decorators" possessed the taste and training only of the more mediocre of our "Paper-hangers" and "Upholsterers" of today. The revolutionary and enlightening movement set afoot by

William Morris in England had not yet made itself felt, and interior decoration in its relation to architecture was (if it could be said to have existed at all) in a state so chaotic as not even to fall under the charitable designation of being "experimental."

We live in another age—an age so different that it is hard to realize the progress—or rather the genesis of that elusive blessing we call "taste" in three decades. And as a sign of the times comes Mr. Hunter's book on the origin, history and renaissance of tapestries, for tapestries have always been, and must, from their nature, continue to be, the logical and ultimate architectural decoration. Hung on a stone wall, tapestries soften it without losing any of their inherent qualities of texture, and on oak panelling they glow with a warmth and richness difficult to associate with a textile—on a wall of chill-looking sand-stone they warm it without losing a degree of their own peculiar temperature. A tapestry is at once an incident and a background—it has been said elsewhere: "It may be said of a tapestry, as distinct from any other decoration of its kind, that it will both strike and consistently maintain the most significant note in a given interior, being at once the center of interest and the foil of everything else in the room. Richly carved furniture or wood-work does not look so well in conjunction with any other back-ground, yet its enhancement is of a sort too subtle for definite analysis. . . . At once



HERCULES

PLATE no. 399. Hercules Killing the Dragon that guards the Hesperides, a Renaissance tapestry in the Imperial Austrian Collection. One of a set of 9 picturing the Story of Hercules. Three are signed with the Audenarde mark and all with what is probably the monogram of Michel Van Orley.

creating and filling its own atmosphere, the tapestry is eminently sufficient unto itself, yet diffusive of many extraneous qualities of beauty and propriety."

The unique value of tapestries in their relation to architecture is gradually coming to be recognized by architects, with recent instances in the new Schwab residence in New York City, and in the specially woven panels depicting the city's history, to be hung in the McAlpin Hotel. Like the painting of the "Old Masters" or the evolution of furniture, a knowledge of tapestries can result only from study, and where no authoritative hand-book on the subject has hitherto been obtainable, Mr. Hunter's "Tapes-

tries" should prove a welcome find, and a mine of information and inspiration.

Historical, critical, descriptive, analytical and instructive, it holds an amazing wealth and variety of contents. In sixteen chapters it presents the following topics, splendidly illustrated: "The Renaissance of Tapestries;" "Gothic Tapestries;" "Renaissance Tapestries;" "Flemish and Burgundian Looms, Arras, Brussels, Tournai, Bruges, Enghien, Oudenarde, Middlebourg, Lille, Antwerp, Delft;" "English Looms — Mortlake, Merton, Barcheston, Windsor;" "The Gobelines, Beauvais and Aubusson;" "Other Looms, American, Italian, German, Spanish, Russian, Swedish, Norwe-

gian;" "The Texture of Tapestries, Arras Tapestries, Greek and Roman Tapestries, High Warp and Low Warp. The Process of Weaving;" "Designs and Cartoons, Portraits in Tapestry, Counterfeit Arras, Animals in Tapestries, Verdures;" "Signatures and Makers, Tapestry Captions, Tapestry Borders, Shapes, Sizes and Measurements;" "The Bible in Tapestries;" "History and Romance in Tapestries;" "Tapestry Point of View and Perspective, Light and Shade;" "The Care of Tapestries, How to Hang, Clean, Repair and Store Them;" "Tapestry Museums. Collections, Expositions, Inventories, Sales and Books;" "Tapestries at the Metropolitan Museum."

Here, indeed, is tapestry lore of all kinds, by a writer who has made a life study of his subject, who writes from the accumulated knowledge of student, craftsman and critic and who speaks with all the weight of a well-known and long-accredited connoisseur.

The architect is now enabled to select the tapestries which are to be the finishing

touch of his building, and may do so with a new assurance that he is committing no anachronism of period. If he loves tapestries, he has at hand an instrument to convince his client that these woven panels are not an inferior and primitive substitute for paintings, but that they are, it may safely be said, the only type of decorative accessory which can never be out of place, or can never tire.

Mr. Hunter's book is splendidly illustrated, with four full page plates in color and nearly a hundred and fifty excellent and well-printed half-tones, while for those who are not only lovers of tapestries, but also of beautiful books, there has been prepared a limited edition on large paper, with wide margins and a soft-toned ink for the illustrations. It can not be doubted that "Tapestries, Their Origin, History and Renaissance," will find its place on the bookshelf of every architect who is even mildly interested in interior decoration, or who thinks of his building in terms other than lumber, stone and steel.





Interesting Building Figures.

Official statistics reveal that building operations in the Borough of Manhattan, N. Y., exceed those of the whole city of Chicago by about five per cent., that they are more than three times those of Philadelphia, and more than five times those of any other city. Added to this reason for its claim to general interest is the fact that the current annual report of the Manhattan Bureau of Buildings completes the first decade of the Bureau as an independent department, and that the reports of the year are supplemented by ten year comparisons. It appears, then, from the report that the building operations have been averaging about \$108,000,000 annually, the lowest figure being reached in 1904 when they were \$84,000,000, and the highest in 1909 when they were \$144,000,000. It appears that the proportion of fire-proof construction is gradually increasing, and that while previous to 1907 there were more new buildings under construction than old buildings being remodeled, the condition has been reversed since 1907. But if fewer new buildings have been lately constructed, their cost is greater, being now about double what it was at the beginning of the decade. It is interesting, further, to observe that while the number of places of amusement which were under construction in 1910 was about the same as the number of private dwellings—forty and forty-three respectively—there was an increase last year to seventy-two places of amusement, and a decrease to thirty-nine private dwellings. This undoubtedly reveals the moving picture craze. Interesting, also, is the revelation of the fact that in the last ten years the number of passenger elevators in the Borough has more than doubled. They now number about 10,000,

the report recommending an addition of twenty inspectors in order that they may be properly watched.

An Encouraging Sign.

Close to the Harvard stadium, the Boston Elevated has just opened a new terminal station for Cambridge subway cars, of which more good can be said than of most stations of the kind. It is very spacious and is carefully arranged for efficiency of service when besieged by crowds, and there has been such regard for appearance that the plans, though designed by Robert S. Peabody as consulting architect, were subsequently submitted for criticism to a committee nominated by the Boston Society of Architects. This was in recognition of the architectural importance of the site which yard and terminal occupy. The fence, really a wall of concrete and brick, which encloses the yard, has been described as not unworthy of comparison with that around the "Yard" of Harvard itself. This makes timely illustration of the truth in a hopeful editorial entitled "The Art of Our Time" in November "Art and Progress." "Compare," says the editor, "the conditions fifty years ago with those today. Where, then, were our palatial railroad stations, our State and City Art Commissions, our art schools?" Not far from the point, also, is this story, which is quoted from a recent paper by the art critic of the New York "Times." "Mr. Pennell, visiting the lock at Pedro Miguel, asked the engineer in astonishment how he had come to make the splendid springing lines of his arches and buttresses as fine as those of a cathedral, and the reply came that it was done to save concrete. These," continued the original raconteur, "are the engineering problems that inspire the artist of today, and our bridges and skyscrapers will have

for their future historian as close association with the beginnings of our new American art as the cathedrals have with the beginnings of Gothic art." When the fence around the storage yard of a street railroad is studied by architects, that it may be made really beautiful and fitting, the incident may not reveal entire spontaneity as to our national art, but it certainly gives ground for hope.

**Director Lord
on the
Teaching of
Architecture.**

At a recent dinner at Columbia University, the new director of the Architectural School made the following interesting address:

"I suppose, after all, there are only two things to consider, viz., what to teach and how to teach it. You are aware of the fact that there has been a wide difference of opinion as to what to teach. We are all struggling to find out how to teach it. I look upon an architectural school as a place to teach architecture. In the term 'architecture' there is a double meaning—first, 'design'; second, 'construction.' In other words, a man to be an architect should have a trained sense of proportion which should enable him to combine beautifully materials to be used in construction.

"As to method, from time immemorial architecture has been produced, each nation or people producing it in its own way. How the majority of these nations have produced their architecture, what their ideals have been, how they arrived at their conclusions, how they actually made their designs, no one can tell. We only know that results were produced. Out of the wisdom of the ages and other conditions brought about by innumerable causes, undefinable, a system has gradually been evolved which has resulted in the formation of a school to teach the art of architecture. The French have developed this system and over-developed it. The Italian makes little progress in these days and is satisfied with his past glory. The German has loved his archaeology but today is wandering far afield and is pursuing new methods and developing a new style. The Briton is satisfied with his own architecture, and we, with our gods in Paris, are trying to compass the whole earth.

"Contrary to general opinion, the French do not teach Classic Architecture or Gothic Architecture, Romanesque, or any other kind of architecture. On the contrary, their whole method is based on a system of first finding out the conditions and then proceed-

ing in a logical way to develop structures and fit these conditions. If we are not following this method in America, the most of us think we should follow it and, in my opinion, we are fast approaching the time when we shall follow it unreservedly to the end. This, indeed, is the 'ideal' system which we are striving to follow in Columbia.

"I do not believe that the best results can be obtained where an architectural department is an adjunct to a university, for the simple reason that the methods which must necessarily be applied in the teaching of an art are so absolutely different from the methods employed in teaching any other subject. But we are only beginning in this country—we can not do everything in a hundred years. Time is the solution of the problem, and I believe we are on the right track. When our present schools are organized into one central school of art we shall then have an organization calculated to develop the student under the most favorable conditions. We are criticized for our method of teaching architecture through the medium of the elements of so-called Classic Architecture and the application of these elements. I think I am right in saying that this has come down to us as a tradition. It is simply a method of teaching 'Proportion' through the medium of certain forms. If any one will propose better, more logical, more interesting, more inspiring forms, there is no doubt of their adoption. One suggests that we teach Gothic, another that we teach Byzantine or Romanesque, and so on. In the absence of anything better in the way of form, we are proceeding on the basis as at present established after hundreds of years of experience.

"As to the method I am trying personally to follow, a few words will suffice. I believe that we should start with the Greek orders, as in them are exemplified the purest art we know and the simplest forms with which to deal. It is along the line of least resistance to take the student. Starting with the Greek orders, I do not mean that a man shall draw out the various orders as well as he may, using unlimited time in the operation. I believe the student should start with the building of which the order may form a part and that it should be made clear that there are other elements in the beginning of this operation that are vastly more important to teach him than the mere order. He should know the value of a wall, of the openings in that wall and the spaces between those openings, of the elements that go to enrich those

openings, to emphasize them, to give them character, to make that wall do its work artistically and constructionally—in other words to make it architectural; to learn that that building has a base, a certain height, a crowning member called the cornice, a roof, either flat or pitched; and by degrees he learns that it has a certain length in relation to its breadth and that these two proportions should have a certain relation to its height. In other words, we are teaching him 'form.'

"Now we might go on analyzing and philosophizing and we come back to the original proposition that it is all a matter of proportion. Once the student knows proportion he can apply it to any style, to any structure, to any object intended to be useful or beautiful in the world.

"As the student becomes possessed of a general knowledge of the elements, we take up with the plan and develop it along the same lines and in the same way. Accompanying this instruction he must study the value of color, the use of materials, and the application of modern scientific appliances in the development of his building. The men in my department are compelled to draw every day of their school course, great stress being laid upon free-hand drawing in the various mediums. Cultivating the bent of the student is the paramount idea. If the students wish to specialize in architectural engineering, they have that privilege in the engineering department; but, as my department is not an engineering school, only such teaching on constructional lines as will enable him to construct reasonably and well is attempted. Prescribed courses in history have been reduced to the minimum with a view to encouraging the student to work out his own salvation by reading and thinking and by observation.

"The architect's training should embrace instruction in all the arts and he should work in closer relation with other artists—the sculptor and the painter. He should work in much closer relation with the engineer, and we are all satisfied that the engineer should work more in harmony with the architect or at least be possessed of certain architectural knowledge which would aid him in designing the various structures that it is a part of his work to build.

"We overdo in a measure the work of specializing in the various branches of our work. This specializing is of course brought about by the requirements of the times, but we should not forget the great periods of the Renaissance and how the artists of

those times—architects, painters, and sculptors—were in many cases masters of the three arts and were constructing engineers at the same time. We know that the fortifications of the old Italian cities were in most cases built by these artists and their varied qualifications led them to other fields of intellectual endeavor. The architect's training should embrace a knowledge of city planning and of the planning of landscape, and must necessarily cover all problems, both artistic and scientific, which affect in any way the existence of the people.

"This whole operation of teaching architecture is practically a business undertaking on an artistic basis. It is a bread and butter proposition. I should like to see every man on leaving Columbia able to earn his own bread and butter. If he can not earn it when he leaves Columbia, he will probably never be worth his salt."

The Latest Restoration.

Christ Church, the oldest church in Boston—better known there as "Old North," and best known to tourists as the church of the belfry where Paul Revere hung his lantern—is emerging

from the danger-fraught ordeal of restoration. It is reported to have come out well. Its exterior has gained much from the sand-blasting which has rid it of the old drab paint and brought out again the warm red of the brick. With spire and window frames glowingly white, the church probably looks pretty much as it did when new, nearly two hundred years ago. The comparatively modern doors have been replaced with doors that at least look as if they might have belonged to the original structure, and that have above them a fanlight with leaded glass. Inside, the apse has been restored to its original semi-circular form, by the opening of a large window which a flat wall had closed for so long that no living person remembered it. Yet it is shown in old prints. The gallery stairs have been replaced, to their great improvement, and the pews rearranged in accordance with their first plan, which fortunately was extant. As far as possible, original paneling and pew doors have been retained. The pews are of the long, "slip" shape, generally uniform, except that set apart for the Governor and "the Pew for the Gentlemen of the Bay of Honduras," a group of merchants who, when the church was built, gave the money for the spire.



VOL. XXXIII
No. II

THE ARCHITECTURAL RECORD

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PUBLISHED MONTHLY BY
THE ARCHITECTURAL RECORD COMPANY
11-15 EAST TWENTY-FOURTH STREET, NEW YORK

F. W. DODGE
PRESIDENT

HARRY W. DESMOND,

CONTRIBUTING EDITORS
MONTGOMERY SCHUYLER

C. MATLACK PRICE

F. T. MILLER
SEC. & TREAS.

HERBERT D. CROLY

YEARLY SUBSCRIPTION
UNITED STATES, \$3.00
FOREIGN, \$4.00
SINGLE COPIES, 25¢

ENTERED MAY 22, 1902, AS SECOND
CLASS MATTER AT NEW YORK, N.Y.

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THE ARCHITECTURAL
RECORD COMPANY
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Photograph by Tebbs-Hymans, Inc.

THE WOOLWORTH BUILDING, NEW YORK CITY.
CASS GILBERT, ARCHITECT.

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Volume XXXIII.

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"THE TOWERS OF MANHATTAN" AND NOTES ON THE WOOLWORTH BUILDING BY MONTGOMERY SCHVYLER

"RECORDS" IN ALTITUDE are precarious and fleeting, almost ephemeral. Astonishing as it now appears, the Park Row Building, not so very long ago, held the record, and probably held it longer than any subsequent erection. The *New York Times* occupied its building in the first year of the new century, and was fain to boast that its edifice "scraped higher clouds" than any other skyscraper in New York. Being interpreted, the boast meant that although the actual altitude of the building from the sidewalk was less than that of the still record-holding Park Row, it stood on so much higher ground as to reach further into the empyrean. And then came the Singer, holding precariously its eminence.

And then the Metropolitan, climbing indisputably "some fathoms further into the ancient region of night" and taking in turn its distinction of being the "tallest inhabited building in the world," and the next in height to the skeleton of the "Tour Eiffel." And now the modern Titan takes another upward shoot in the Woolworth, with the tower a good head and shoulders above that of the Metropolitan, still further overpassing the Singer and, unfortunately and incidentally, "blanketing" that former giant, now reduced, as you may say, almost to moderate stature.

How long will this now new record hold? What next? Truly, what is the limit? It is very clear that the limit is



*The foremost of the earlier
towers of Manhattan.*

THE TIMES BUILDING, NEW YORK CITY.
C. L. W. EIDLITZ, ARCHITECT.



Copyright by Underwood & Underwood.

*The clear height of the Singer Tower is screened
by the mass of the City Investing Building.*

THE SINGER BUILDING, NEW YORK CITY.
ERNEST FLAGG,
ARCHITECT.



Copyright by Underwood & Underwood.

*A photograph taken at night
by the light from the offices.*

THE SINGER BUILDING, NEW YORK CITY.
ERNEST FLAGG, ARCHITECT.

commercial, not technical. In the absence of restraining laws, every projector of a building built for profit will carry it as high as he thinks it will pay him to carry it. And among real estate speculators, among architects, among engineers, you will find a new opinion with every new expert you ask. "Quot homines, tot sententiae." Possibly the Woolworth may retain its preëminence for a decade, possibly it may lose it next year. The sudden upstart of Jonas' gourd or Jack's beanstalk is nothing to the swiftness of these latter uprisings. They shoot up "while you wait."

Meanwhile the competition is not only commercial, but in a measure artistic. No Gradgrind of a projector would dare to attack "the record" without some thought as to how

THE TOWER OF THE METROPOLITAN LIFE INSURANCE COMPANY, NEW YORK CITY.
N. LE BRUN AND SONS, ARCHS.

his record beater was going to look. And probably there is no cultivated and ambitious architect, even though as yet "no man hath hired him" to do a skyscraper, who does not carry around in his mind, and in his leisure moments fondle, some idea of the skyscraper he would like to build. When he actually "lands the job" he may find that the necessary concessions to practicality leave the idea hardly recognizable to himself, and not at all recognizable to "the man in the street." The practical requirements in every case issue, as to the body of the building, in an almost identical result, that is to say, a parallel piped with the minimum of supports or

Built shortly after the Singer Tower, and exceeding it in height.



Copyright by Underwood & Underwood.

"solids" and the maximum of "voids" or windows. It is only in the sky-line, in the upper termination, that he has, as an artist, a real chance. It is at any rate in the towers that the difference between architect and architect most clearly appears, and hence a comparison of the most distinguished and remarkable of these terminal features, such as that for which our illustrations supply the material, ought to be instructive and interesting. The Times tower, the Singer tower, the Bankers' Trust, the Municipal Building, the Metropolitan Life, and now this soaring Woolworth are undoubtedly among the most interesting of our experiments in skyscraping.

There is among these an initial and obvious distinction. Our tall building is in fact a frame building. Some architects endeavor to express that primary fact, and some find it more convenient to ignore it. The difficulty in expressing it lies in the circumstance that the actual structure, the steel skeleton, must be overlaid, and in part concealed. A writer who had adduced the Singer Building, not that of the tower, but the Singer Building in Broadway near Union Square, as "the logical skyscraper" was taken sharply to task by another writer, who insisted that the exposure of the metal frame was not "logical" at all. It was, all the same, in theory, although in practice the consensus of architects is that the frame must be enveloped, or wrapped, with incombustible material for security against fire. The writer of the article on Architecture in the *Encyclopaedia Britannica*, being unaware of this fact assumes that the masonry envelope is added "for appearance sake," and thereby goes far to vitiate his critical comments. The difference is none the less fundamental between the assumption that the envelope or screen is a real wall of masonry which carries itself, and the acknowledgment in the design that it is only an envelope and the endeavor to express the actual structure behind it. Of the towers which we illustrate, the Metropolitan, the Bankers' Trust and the Municipal Building evidently proceed upon the former assumption. The Times tower may be called a compromise. Its

substructure assumes the reality and self-support of the visible wall, but in the tower itself the fact of a frame is unmistakably conveyed and powerfully expressed. The architect of the Singer tower has also managed to convey this same sense of the skeleton behind the padding by artful devices such as the variation in material and color, and the lightening and opening of the fenestration at the centre, in comparison with the solidity of the outer piers so as to denote that the central part is not a wall, but a mere screen quite incapable of supporting itself. Of all the buildings in our list, the Woolworth most unmistakably denotes its skeleton. Nobody could possibly take it for a masonic structure. The uprights of the steel frame are felt throughout and everywhere, while the device of tinting the "transoms" and of carrying through at intervals the transverse bands around the building shows that the uprights are tied together and gives a grateful sense of a security very different from that which is obtained by the apparent immobility of the mass and weight of masonry.

It will be admitted that all these towers are shapely, worthy of the attention which they compel, credits to their designers, ornaments to the city, and the variations in detail following the several notions of the architects are sources of additional interest. "There are differences of operation, but the same law." "The law" is that in a building of which the utility is the justification, all the space shall be utilized to the utmost. Of the towers we are considering, that of the Metropolitan doubtless comes the nearest to complying with "the rigor of the game." Even its steeply sloping roof is divided into visible and tenantable stories. There is no superfluity excepting the actual finial of the crowning member. Even this has its justification as a "belvedere." We believe it has actually made money as an "outlook." If not, it evidently might do so. What one chiefly quarrels with, in the design of the Metropolitan tower, is that "die" continuing the rectangular shaft in a rather shrunken state through the loggia, with its graceful arcades and vigorous shadows. Up to that point the



*Photograph by Johnston & Hewitt.
The tower of the Singer Building
is visible in the distance.*

THE BANKERS' TRUST BUILDING, NEW YORK CITY.
TROWBRIDGE AND LIVINGSTON, ARCHITECTS.



*Photograph by Johnston & Hewitt.
The smoke-stack of the building is carried
out at the apex of the pyramidal roof.*

THE BANKERS' TRUST BUILDING, NEW YORK CITY.
TROWBRIDGE AND LIVINGSTON, ARCHITECTS.



Photograph by Underwood & Underwood.

*A towering city office building
which bridges over Chambers St.*

THE MUNICIPAL BUILDING, NEW YORK CITY.
McKIM, MEAD AND WHITE, ARCHITECTS.

composition is very satisfactory and engaging, but if the shaft had been lifted in its full dimensions by the number of stories included in what we have called the "die" and the slanting roof thereon immediately superposed, we think that the dignity of the monument would have been much enhanced. Certainly its aspect would have been more commanding in any distant view over the roofs to the eastward. And indeed from any view the "die" does not account for itself. It is either too important or not important enough, and seems to have been injected from an insufficiently discriminating following of precedent or from a misleading analogy of proportion. The plain pyramidal roof of the Bankers' Trust more fittingly "crowns the work." The interior of this pyramid, blinded as it is by the solid sloping walls to outer light and air, may look like a sacrifice of utility to architecture, which in these edifices is not permissible. But in fact one understands that this interior has been found available and profitable as a place of storage, or "archive." An interesting design was shown some years ago in which the pyramidal roof was terraced or "stepped," each step being in fact a story furnished with windows and obviously habitable. Perhaps this may be the next development. In the Times tower, which remains one of our best achievements in this kind, the need of a sloping roof by way of protection is frankly disavowed, as indeed with modern construction it is superfluous. The experience of all these centuries has shown it to be superfluous, even in the case of the Campanile of Giotto, the prototype of the Times tower, which the later architect has manipulated to so admirable a result. In the Municipal Building the rigor of the prohibition against the devotion to architectural effect of space which might otherwise be available for occupancy has plausibly been held to be relaxed. This is not only an "office building," which for the most part it very strictly is, and to the conditions of which, for the most part, it very strictly conforms. It is also a civic monument. Hence the designer has held himself free, after he had worked clear of the roof, to produce

a purely decorative object. This the tower distinctly is; and moreover, one can imagine that all its stages up to the actual finial are available for occupancy or storage.

The Woolworth Building is in this respect not quite in the same category. For this is a distinctly utilitarian erection, to be justified of its utility, or not justified at all. It may, and indeed almost must, recede as it rises, but the recessions as well as the main mass must be not only "built to the limit" but occupied and made to pay to the limit. Those who remember the design for it as first published will remember how loyally, how almost brutally, this condition was therein fulfilled. Compared with the actual work, the stark mass which resulted from that first consideration was crude and "lumpy." It was the second recession of the upper stages, together with the elaboration and the lightening of the detail, which has converted it into the thing of beauty which we now thankfully recognize. The achievement of this result involved a similar recognition on the part of the client who must have sacrificed some space and added much enrichment of this crowning feature with his eyes wide open. The tower commemorates his sense of civic obligation, as well as the inventiveness and the sensibility of his architect.

DETAILS OF THE WOOLWORTH BUILDING.

The introduction into general use in this country of terra cotta as a decorative material is hardly more than a generation old. One of the lessons of the Chicago fire of 1871, reinforced by the Boston fire of the following year was, as everybody interested in the subject knows, that unprotected metal supports could not be trusted to retain their shape, nor their supporting power, in the heat of a fierce conflagration. Soon after the fires in question, experiments began in adjusting to the supports protective envelopes of baked clay. The use of terra cotta, thus began, was extended by the establishment of one or two firms which made a specialty of terra cotta cornices, as a cheaper substitute for stone, as a



Photograph by Tebbs-Hymans, Inc.

*The tallest office building in the world,
55 stories high exclusive of the pointed roof.*

THE WOOLWORTH BUILDING, NEW YORK CITY.
CASS GILBERT, ARCHITECT.

more efficient and durable substitute for sheet metal. This was by no means the first experiment in the decorative use of terra cotta. Long before the great fires mentioned, in the sixties, even in the fifties, terra cotta had been decoratively employed. It was so employed in the

old Trinity Building, designed by the elder Upjohn and facing Trinity Churchyard in New York. It was so employed at about the same time or perhaps even earlier, in the cornice of the "Tontine Coffee House," near the foot of Wall Street, designed by Renwick. But these



Photograph by Tebbs-Hymans, Inc.

DETAIL AT THE 42D STORY, THE WOOLWORTH BUILDING, NEW YORK CITY.

Cass Gilbert, Architect.

experiments remained fruitless. It was in the early eighties, and almost coincidentally with the introduction of the steel frame, that the manufacturers began to offer, and the architects to avail themselves of terra cotta adapted to an extensive system of enrichment. The front of a little brick chapel at the corner of Lexington Avenue and Twenty-third Street, by Messrs. Le Brun, demolished a year or two ago, was noteworthy for the elaborate treatment of its front in terra cotta. This elaboration in effect constituted the entire architectural interest of the front, or of the building. It was further noteworthy as being unmistakably intended for its material, whereas most architects who employed the material in those early days used it as simply a cheaper substitute for stone, and in altogether lithic forms. There was a charming and characteristic use of terra cotta, and of terra cotta admirably executed as well as designed, in a building designed by Mr. Hardenbergh for the Western Union Company, at Broadway and Twenty-third Street, which still stands, but has been so mauled and painted over by subsequent possessors as to have been deprived of much of its interest.

When the steel frame came in, the use of terra cotta instead of stone as the main material of the exterior as well as of the interior was imperatively indicated, not only by the cheapness of the material in the comparison, but by its superior adaptability to the expression of the construction. It is true that not all or most architects of skyscrapers showed much interest in attaining a characteristic and expressive treatment. Perhaps the majority do not show this desire even yet. But for the expression of a frame which must be wrapped to protect it from the elements, it is clear that great advantages are offered by the use of a material originally plastic, which can be moulded so as to conform to the structure which it at once conceals and reveals, and by which the columns can be tightly "jacketed," over a material which must be painfully and wastefully cut into the desired shapes, and which in fact is not commonly adapted to the actual structure

artistically, but only adjusted to it mechanically, purporting to be an actual and self-carrying wall of masonry.

It will not be disputed that the great architectural success of the Woolworth Building is eminently the success of an expressive treatment. Can one imagine an equal success to have been attained, either structurally or decoratively, under any practical conditions, by the use of a material originally non-plastic? It could have been attained in stone at all only by doing a violence to the material. Consideration of this violence, and of the waste of material and of labor which it would involve, in truth goes far towards justifying the architect who, having chosen stone for his surfacing, chooses to ignore his essential structure altogether and treat his envelope as a smooth stone wall. And the case is as clear with respect to the decorative features which form the subject of the remarkable series of photographs which we have the pleasure of herewith presenting. The taking of them, from temporary scaffoldings at the levels of the details photographed, scaffoldings now removed, was itself a notable achievement in photography. "It never can happen again." To get the same effects, the visitor must repeat Tennyson's experience at Milan, an experience which will be vividly recalled to the poetical reader by the contemplation of these photographs:

I climbed the roofs at break of day:
Sun-smitten Alps before me lay,
I stood among the silent statues,
And statued pinnacles, mute as they.

One of the chief successes of the Woolworth, all will agree, is its success of "scale." This is emphasized and elucidated by these close views of the culminating detail. The "man in the street" can hardly help observing the distinctness and sharpness of the outlines of the canopies and arcades so many hundred feet above him. If a student of architecture, even while admiring the skill with which the scale has been held in mind, and what to him looks like a delicate and elaborate embroidery adjusted to its position, he will be prone to apprehend that when seen close at hand



Photograph by Tebbs-Hymans, Inc.

DETAIL AT THE 38TH STORY, THE WOOLWORTH BUILDING, NEW YORK CITY.

Cass Gilbert, Architect.

it must become gross and crude in effect. The near view, whether in fact or in these photographs, undeceives him on this point, and shows him that some more subtle process of adjustment than mere magnification has been at work. All this decoration, when looked at from its own level, seems to have been designed to be looked at from that level. Take the flying buttress, take the canopied arcade,

take the finials, and you find that the process by which they are made to take their places as properly here as from the sidewalk, has by no means been a process of mere "monstrification." It is much subtler than that. It includes consideration of projections and recessions, of depths and detachments, of lights and shadows. One perceives also the effect of the color applied to the plane sur-



Photograph by Tebbs-Hymans, Inc.

DETAIL OF FLYING BUTTRESS AT THE 42D STORY, THE WOOLWORTH BUILDING.

Cass Gilbert, Architect.

faces. As color it hardly counts from below, but as a means of detachment and clarification it counts emphatically in the distant view. And in the near view, take such a feature as the doubled window at the angle, with that grotesque gargoyle—from Notre Dame de Paris, is it?—protruding just beyond it. There is nothing in the photograph, nor in fact,

to suggest that it would not be perfectly in place, so far as its scale goes, if it were meant to be habitually and exclusively seen on a level with the eye of the passer in the street.

All this is an unusual success. But the artistic quality of this detail is at least as remarkable as its adjustment. One would like to know what a scholarly



Photograph by Tebbs-Hymans, Inc.

DETAIL AT THE 27TH STORY, THE WOOLWORTH BUILDING, NEW YORK CITY.

Cass Gilbert, Architect.

and academic European Gothicism would have to say to it, or to such of it as does not "give itself away" in the photograph as part of a modern, commercial, many-storied building, considering it merely as "Gothic." One has seen photographic "bits" of famous minsters in comparison with which this brand new American Gothic loses nothing. Far be it from

us to use the success of this detail as a means of reopening the Battle of Styles. But one can hardly refrain from asking himself whether a success comparable with that of the latest and greatest of our skyscrapers can be attained within the repertory of our Parisianized architecture. If so, one would delight to see it produced and to celebrate it accordingly.



Photograph by Tebbis-Hymans, Inc

DETAIL AT THE 28TH STORY, THE WOOLWORTH BUILDING,
NEW YORK CITY. CASS GILBERT, ARCHITECT.



Photograph by Tebbs-Hymans, Inc.

The Terra Cotta here shows six colors. Below is a glimpse of the new Municipal Building.

DETAIL OF WINDOW JAMB AT THE 47TH STORY,
THE WOOLWORTH BUILDING, NEW YORK CITY.
CASS GILBERT, ARCHITECT.



Photograph by Tebbs-Hymans, Inc.

DETAIL AT THE 51ST STORY, THE WOOLWORTH BUILDING,
NEW YORK CITY. CASS GILBERT, ARCHITECT.



Photograph by Tebbs-Hymans, Inc.

MAIN GABLE, THE WOOLWORTH BUILDING,
NEW YORK CITY. CASS GILBERT, ARCHITECT.



Photograph by Tebbbs-Hymans, Inc.

CANOPY AT THE 27TH STORY, THE WOOLWORTH BUILDING.
CASS GILBERT, ARCHITECT.
NEW YORK CITY.



Photograph by Tebbs-Hymans, Inc.

DETAIL AT THE 27TH STORY, THE WOOLWORTH BUILDING,
NEW YORK CITY. CASS GILBERT, ARCHITECT.



Photograph by Tebbs-Hymans, Inc.

DETAIL OF FLYING BUTTRESS AT THE 42D STORY,
THE WOOLWORTH BUILDING, NEW YORK CITY.
CASS GILBERT, ARCHITECT.



Photograph by Tebbs-Hymans, Inc.

DETAIL OF WINDOWS AT THE 47TH FLOOR, THE WOOLWORTH
BUILDING, NEW YORK CITY. CASS GILBERT, ARCHITECT.



A FARM HOUSE NEAR ELY.
From a pen sketch by Walter S. Schneider.



A BICYCLE TRIP THROUGH ENGLAND WITH ARCHITECTURAL NOTES.

By WALTER SCHNEIDER.



THE PROBLEM, from an architectural viewpoint, of selecting the most interesting countries for a trip of this kind, to be completed within a limited time, of, say—well—five months, brings in its train many smaller problems. But in selecting England, France, and Italy, as the field of exploration, I think that no mistake is being made. Not only are the roads in these countries in good condition, but to the students of monumental architecture they offer the most interesting example.

The route that I followed began at London and extended northwards through St. Albans, Cambridge, Ely and Peterborough, to Lincoln. From Lincoln, I went westward to Litchfield, and then southward through Stratford-on-Avon, to Oxford, Salisbury and Win-

chester. From Winchester, I went to Southampton, whence I took the boat to Havre; from Havre I followed the road which led to Rouen, Evreux and Paris.

While residing in Paris I had visited the "environs" and had also made a train trip through the northern cathedral cities of France, embracing the palace at Compiègne, and the cathedral towns of Soissons, Rheims, Laon, Amiens and Beauvais.

So now, on leaving Paris, I went southwest through Chartres, then southeast to Orléans, and from there through the chateaux country along the river Loire. Below Orléans I visited Chambord, Cheverny, Blois, Chaumont, Amboise, finally arriving at Tours. With Tours as headquarters, I made a circu-



CANTERBURY CATHEDRAL, ENGLAND.

lar trip through Langeaise. Ussé, Chinnon, Azay-le-Rideau, and Villandry, returning to Tours before going East.

DETAIL OF CHRIST CHURCH GATE,
CANTERBURY, ENGLAND.

Then came Chenonceaux, and the chateaux country was being left behind me when I entered Nevers and Bourges. From Bourges my route lay almost due south through Moulins, Vichy, Clermont-Ferrand and Le Puy. Then leaving the mountains of Auvergne, I headed for Lyons. Then south again through Valence, Orange, Nîmes, Arles and Avignon, to Marseilles.

The last part of my journey along the Mediterranean coast of southern France was nearly perfect in its beauty and interest. My road followed the coast line continually, always within a stone's throw of the water. The places passed through on this road were Toulon, Hyères, St. Raphael, Fréjus, Cannes, Nice, Monte Carlo, Monaco and Menton. Here I crossed the Italian border and continued my journey through the towns of the Italian coast to Genoa, where I ended my long tour by bicycle. My Italian journey I made by train.

There are many students of architecture who are ambitious to cross the ocean, and, even though they may not study abroad, to at least see for themselves many of the wonders of Old World art and architecture which they have heard of so often, and of which they have seen photographic reproduc-



ELY CATHEDRAL, FROM THE MEADOWS.

tions. I, also, had this same desire, and my experiences and travels may prove of use to others who have not yet been to Europe, but who cherish the hope of going there.

After having been a student in Paris for eight months, and my time allowance abroad nearing its completion, I decided to travel, having a strong desire to see a bit of Europe before returning to the United States and the every-day grind of professional life.

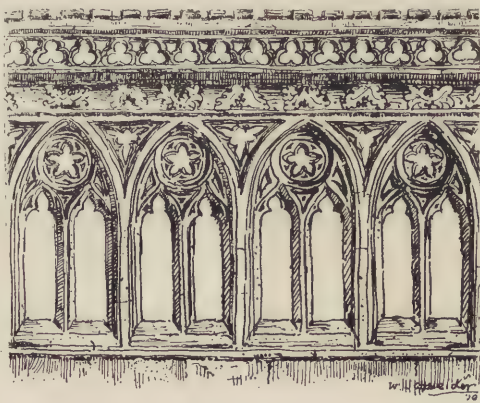
The decision to travel, was, however, but the first and easiest step towards the accomplishment.

I wanted to travel in such a way that I would be able not only to cover an interesting section, but—the great question now arose which faces most young men with desires similar to my own—how to keep expenses at a minimum? Train traveling, though not expensive, was nevertheless, more than I could pay during a

protracted tour. A motorcycle, while very good in a way, would, together with repairs, fuel and great initial cost, amount to more than train fare—especially as I doubted that I could dispose of the vehicle after I had finished my trip. The solution of the problem seemed to lay in a bicycle.

In Europe, unlike the United States, the bicycle still holds the high place among vehicles and the sports to which it is justly entitled. In each country there are numerous associations and clubs whose object is to promote the sport of cycling and kindred sports. And, after investigating as to which club offered the greatest advantages to one in my position, I enrolled in the Touring Club of France.

The entrance fee to this club is but 6 francs (\$1.20), and there are many advantages to be derived in joining the organization. Club members are allowed to take their



DETAIL OF PRIOR DE ESTRIA'S SCREEN, CANTERBURY.



"THE OCTAGON TOWER," ELY CATHEDRAL, ENGLAND.



DETAIL OF DOOR, BISHOP WEST'S CHAPEL, ELY CATHEDRAL.

bicycles into any country duty free, they can save ten or fifteen per cent. on any repairs, and about the same on hotel expenses at authorized Touring Club hotels. Of these, one at least can be found in any town, however small, throughout France, and almost as frequently in other countries. Road maps and guide books with the lists and rates of these hotels can be obtained from the Touring Club at a very small cost.

Early in May I was ready to start my wanderings. England was the first country I had elected to visit, as it is most beautiful during that month. I had planned to go to London by rail and there to procure my traveling necessities for the bicycle trip. So on leaving Paris I went directly to Canterbury by boat and train and there spent the night and the following day.

Canterbury is a town full of pleasant surprises to the student of architecture. The beautiful cathedral is, of course, always accorded first place, but there are many other interesting works, including the old Norman Stairway, the donjon, the West Gate (14th Century), Christchurch Gate and the quaint little church of St. Martin, which is often called



DETAIL OF THE WEST PORCH, ELY CATHEDRAL, ENGLAND.

"The Mother Church of England." Then there are numerous monuments of lesser interest.

The present cathedral of Canterbury is the third church built on the same site. Its erection covered a period extending from 1070-1495 A. D., but the exterior appearance of this wonderful structure is in the Perpendicular Style. The interior, though of huge proportions, produces an effect which is wonderfully light and graceful. The choir is one of the longest in England, and is raised several feet above the nave, a peculiarity which occurs nowhere else in England with the single exception of Rochester cathedral.

By good fortune, the day on which I visited the cathedral chanced to be the anniversary of the death of Edward VII. Memorial services were held in the cathedral, attended by the King's Guard and various military functionaries. The effect of the brightly colored uniforms and trappings in the general grayness of the interior produced a charming effect.

Perhaps the most interesting object outside of the cathedral is the fine Norman Stairway which forms the approach to the upper hall of Kings

School. This stairway, with its open arcades at the sides, is the only structure of its kind in the country. It presents an appearance of wonderful



DETAIL OF ARCADE IN LADY CHAPEL, ELY CATHEDRAL, ENGLAND.



A HOUSE ON ST. DUNSTAN'S STREET,
CANTERBURY, ENGLAND.

sturdiness and is remarkably well preserved.

From Canterbury I took train to London, upon which city I shall make no remarks beyond that it was the initial point of my long trip through three countries. Sufficient information and comments on London are easily to be found, without my adding any remarks to the already adequate descriptions.

Lest anyone take a long bicycle trip on the enthusiasm of the moment, I would here give a word of warning based on my own experience. Though I did not take the journey until after due consideration, yet I failed to a great extent to appreciate the difficulties and exertions of my project. In a spirit of over caution, I had solid rubber tires put on the bicycle, which, while eliminating all tire trouble, added greatly to the weight of my equipment. My bicycle was a machine of American manufacture, with two speeds for hill climbing, mud-guards, lamp, and bag-

gage carriers in front and in back. Thus equipped, I left London on the road to St. Albans, filled with enthusiasm, which gradually filtered out, until at the end of the twenty miles of cycling between London and my destination, my mental state was such that I could readily have forsaken the entire enterprise with very little regret. But a good lunch revived me sufficiently to enable me to visit the fine old abbey, now a cathedral, which is much restored, and appreciate its impressiveness.

St. Albans is an old Roman town, a fosse and fragments of an old wall still remaining from the date of the occupation. The abbey, one of the largest churches in England, represents a building period that only terminated in the 20th century, when the building was extensively restored and a new Early English west front added. In the earliest parts of the building, dating from the



TYPICAL BRONZE LAMP ON THE THAMES
EMBANKMENT, LONDON.



THE BRITISH MUSEUM, LONDON, ENGLAND.

eleventh century, Roman tiles from Verulamium were freely used.

The interior of the church is in a curious and interesting mixture of Norman, Early English, and decorated styles. The choir is furnished with a painted ceiling dating from the middle of the 14th century, while that of the chancel is nearly a century later in date.

Adjoining the abbey is an old stone gateway, which is the only remnant of the conventual buildings. It is in the perpendicular style, and, while at one time used as a prison, it now forms a part of the school buildings.

St. Albans possesses among its architectural curiosities several interesting buildings of minor interest. Among these may be mentioned the Inn of the Fighting Cocks, which claims to have been built in 795, and the church of St. Michael, which, aside from its antiquity, interests us as containing the tomb of Francis Bacon.

Early the following morning—to be precise, at 6 o'clock—I was on my way to my next stopping place, which was to be Cambridge. My road passed near the famous Elizabethan mansion known as Hatfield House, but the early hour, and the residence of the family prevented my intended visit.

The weather in England has a queer faculty of deceiving the credulous tourist. I was no exception to the rule.



"BIG BEN," THE CLOCK TOWER ON THE HOUSES OF PARLIAMENT, LONDON.



ST. ALBANS ABBEY, ENGLAND.

The early morning had given promise of delightfully cool weather for cycling, but I had not been on the road an hour, when all my doubts of the wisdom of cycling came rushing back upon me, intensified an hundred-fold by a blazing sun, and hills that seemed forever to ascend and never to descend. But all things have an ending, and at last I found myself under the cool shade of the welcoming trees of Cambridge.

Although possessing other features of interest, Cambridge is essentially a college town, and its main interest lies therein. There are seventeen colleges, the majority bordering along the little river Cam.

The college buildings of Cambridge, while ruled by the Gothic spirit, feature all styles and kinds of architecture, covering as they do in their erection a period dating from 1284 to 1879. The museum given by Viscount Fitzwilliam, dating 1816, erected in the Greek revival period, and known as the Fitzwilliam Museum, contains many fine canvases, casts, and sculptures, also a very fine model of the Taj Mahal at Agra, entirely constructed in ivory.

The oldest collegiate building in Cambridge is St. Peter's College, known as Peterhouse, dating in its foundation from 1284. It is built around two

courts. The chapel (every separate college has its own) is a curious structure in the Italian Gothic style, dating from 1632.

Peterhouse has been greatly changed and added to since its erection—one of its additions being the new hall, on the second court, which contains some very beautiful stained glass by Morris and Burne-Jones. The former chapel of Peterhouse, now the church of St. Mary the Less, was used as the college chapel for three and a half centuries. Originally in the Decorated Style of the fourteenth century, it has lost its charm and interest through the alterations it has experienced.

Queen's College, founded in 1448, is entered through a vaulted gateway, surmounted by four turrets, which leads to the great court, on which stand the hall, library and the old chapel. The new chapel is on another court, removed from the other buildings.

Corpus Christi College was established in 1352. The west front and entrance court are modern work, but the second court belonged to the original building. A curious covered passageway is built from this college to the church of St. Benedict. The tower of this church, which is noteworthy, is generally recognized as one of the best ex-



"THE COMBINATION ROOM," PETERHOUSE COLLEGE, CAMBRIDGE, ENGLAND.

amples in England of pre-Roman architecture. The remainder of the building is modern, with the exception of an arch in the interior, which opens into the tower.

Perhaps the most interesting of all the colleges at Cambridge is King's College. The great court, entered by a splendid stone gateway, is separated from the street by a modern openwork stone screen in the Gothic style, surmounted by small pinnacles. And immediately one has entered this court the attention is caught and held by the chapel.

This beautiful edifice, one of the finest Perpendicular structures in England, is the architectural glory of the countryside. And the interior is the glory of the chapel. Here is typified the highest development of Gothic vaulting, known as fan-vaulting, giving to the interior a beauty and grace that is unsurpassed. The wood carving of the stalls and organ vie for place in beauty and interest with the vaulted ceiling. Beautiful stained-glass windows of the sixteenth century illuminate the interior with a soft and colorful light. And everywhere, in large detail, both on exterior and interior, are carved the em-

blems of the Tudor house—the porticulis and rose. The entire chapel is 290 feet in length and 85 feet in width.

The other buildings of the college are of the eighteenth and nineteenth centuries and lack architectural interest.

The largest college in England is Trinity College, founded in 1546, which is entered through the beautiful arch known as King's Gateway. The statue of Henry VIII. surmounts this gateway and statues of various sovereigns decorate the court facade. The chapel—a Tudor construction—contains some splendid carved woodwork and numerous statues. The dining hall, seating seven hundred persons, is a fine example of its kind. A passage leads from the hall to the cloisters—an open court enclosed on three sides by covered arcades. The library, built by Sir Christopher Wren, though not unusual in design, exhibits good taste and intelligent study.

The plan of St. John's College is built about four courts. The first court is entered by a monumental stone gateway surmounted with its statue of St. John. On this court are built the chapel—a modern "Decorated" building, the interior of which is crowded with marbles



IRON GATEWAY, TRINITY COLLEGE, CAMBRIDGE, ENGLAND.

and carvings—and the Hall. This is a long room, panelled in dark oak, and roofed with a fine open timber roof which is both structural and ornamental.

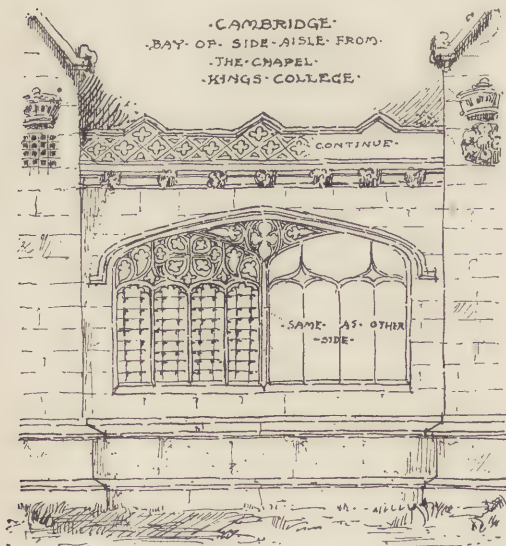
The second court is interesting mainly on account of its brick work. Time, the greatest of artists, has colored the brick a beautiful purple-red. The buildings of the other two courts are lacking interest.

Jesus College is built on the site of a

Benedictine nunnery. Its most interesting building is the chapel. This building was originally the church of the nunnery, but now, as the college chapel, it is shorn of two-thirds of its nave. The transepts are late Norman work. The remainder of the building, while added to in the Perpendicular style, is Early English in character. Here also are windows by Morris and Burne-Jones.

An odd building, of which there are but three others extant in all England, is the Round Church. It is the oldest of the four round churches, being an early Norman building of the year 1101. While the college buildings may be called interesting and picturesque, they are hardly remarkable from an architectural viewpoint—with one or two exceptions, such as King College chapel, Fitzwilliam Museum, and several of the gateways. The main interest in the town lies in its being the seat of a university, and in the histories of the various colleges and their students who later became famous.

From Cambridge to Ely the roads were almost perfectly level—as indeed they were for the last ten miles between St. Albans and Cambridge. On arriving before the door of the hotel in Ely at which I intended staying the first



A DETAIL SKETCH AT CAMBRIDGE.



"BRIDGE OF SIGHS," ST. JOHN'S COLLEGE, CAMBRIDGE, ENGLAND.

person I met was a shipboard acquaintance, whom I had not seen during the nine months I had been in Europe. And the queerest part of this meeting was that this gentleman, having been in Europe all that time, was leaving for Liverpool in a few hours to take his passage homeward. So, as fellow-countrymen in a strange land, we at once joined forces and together set out to explore the town.

The interest in Ely—aside from its history—centers in the cathedral. There is very little else in the town worthy of notice. But the cathedral in itself makes up to us for the paucity of other considerations. It is built on the site formerly occupied by the abbey of St. Etheldreda, founded in 673 A. D., and is one of the largest and most varied in England. Its measurements are: Length, 520 feet; breadth, 77 feet; length of transepts, 178 feet; height of nave, 62 feet, and height of choir, 70 feet.

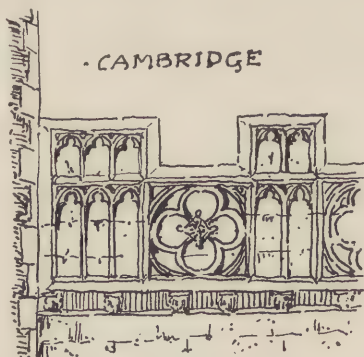
The first work on the present building dates back to 1083. The

last work was done in 1847 when the entire building was restored under the supervision of Sir Gilbert Scott.

But the crowning beauty of the cathedral of Ely is its famous Octagon, built 1322-28, following the fall of the central tower. Through its beauty and the genius displayed in its construction, it has immortalized the name of its creator—Alan de Walsingham.

The western tower on the exterior at once attracts attention. It does not look as if intended for a church, but rather as if for a fortress. The heavy effect of this Norman Transition piece of work is relieved to a certain extent by the turrets and the octagonal capping which were added during the Decorated period. The Octagon dominates the whole building from every point of view.

The nave of Ely cathedral is a splendid piece of late Norman work. The ceiling—now pitched—was originally flat, but the construction of the Octagon necessitated this change. The painted decoration that



DETAIL OF PARAPET FROM GREAT GATE, TRINITY COLLEGE, CAMBRIDGE.



"THE GREAT GATE," TRINITY COLLEGE, CAMBRIDGE, ENGLAND.

ornaments it is by Mr. l'Estrange and Mr. Gambier Parry. In the south aisle stands an interesting old Saxon Cross.

The nave ends at the Octagon, which terminates in a fine timberwork lantern 142 feet above the pavement. The Octagon itself was harmoniously and cleverly decorated in color by Gambier Parry.

St. Edmund's Chapel, which opens off the north transept, was restored in 1898. The interesting contents are a fourteenth century screen, and the remains of a fresco depicting the martyrdom of St. Edmund.

The wooden screen separating the Octagon from the choir is a modern piece of work. The eastern half of the choir (Early English) is almost a century older than the three splendid western bays (Decorated). Of the woodwork—everything is modern with the exception of the upper stalls, which are fourteenth century work.

At the ends of the two side aisles are two interesting chapels—one being the chapel of Bishop Alcock, and the other that of Bishop West. Both are masses of beautifully carved stone work of an amazing fineness and delicacy, but at the present date they show the destruction wrought by the revolution for the Commonwealth. On the floor of the aisle between these two chapels is preserved a curious piece of Mosaic.

The entrance to the Lady Chapel is in the northeast corner of the north transept. This

chapel, a good specimen of Decorated work, was being restored at the time I was visiting the cathedral. It is at present serving as a parish church.

In former times there was a cloister adjoining the cathedral on the south, of which only a few fragmentary remains now testify to its existence.

The remains of the monastic buildings, greatly altered and added to, now serve as the deanery and school.

I was an actor and victim in a very amusing occurrence while visiting the cathedral. After all the visitors had left, and the hour for closing the doors

of the church was approaching, the verger, seeing that I was greatly interested in the building, offered to take me up to the triforium and over the roof. I gladly accepted his proposal, and accompanied him through wonderful storerooms filled with architectural fragments, through narrow, low doorways, and under the broad sweep of buttresses. While so engaged we heard the workmen who had been busy with some restorations in the triforium, leave the building, but paid little attention, until, on descending the circular stone staircase, found that the door at the exit was locked. The workmen had not known that anyone was in the building and had unconsciously made us prisoners! The key to the door they had hung in its accustomed place on the pier at the foot of the stairway, but at the other side of the door. There seemed no way for us to get out! the verger and I, after thinking of various schemes, finally decided to utilize some rope which lay near by and so descend from our prison, but the rope was not sufficiently strong. After waiting a half hour, we had about made up our minds to spend the night where we were, when the echo of footsteps upon the cathedral floor reached our eager ears. Our shouts soon won our liberation, and we thanked a kind Fate that two of the visitors had missed their train, and by purest chance had returned to the cathedral to kill time!

And now I wish to give a few closing



DETAIL OF "THE GREAT GATE," TRINITY COLLEGE, CAMBRIDGE, ENGLAND.

hints to prospective travelers. In visiting various places, one can procure some fine views of buildings and their details that will be of great value in after years. These photographs can be purchased at the rate of ten cents the dozen and are in post card form. A camera can thus be dispensed with, for not only is it unnecessary, but it makes an extra package, necessitates delays while the negatives are being developed and makes considerable added expense. For details of which photographic views cannot be purchased, the sketch book offers an efficient substitute, besides de-

veloping the sketching ability of the student.

The cost of living in England, while not expensive, is the least bit higher than in France. Thus far on my trip, I found that my three meals a day had averaged about 4 shillings (\$.96) a day, my room each night, 1 shilling 6 pence (\$.36) and incidental expenses such as postal cards, tips, etc., came to about 1 shilling 6 pence more. This made a total of about 7 shillings a day, or \$1.70. Of

course, one cannot live anything but plainly at this rate.

While traveling in England, I generally stopped at temperance hotels. These hotels are, on the whole, reasonably good and clean, though, of course, in the vicissitudes of traveling, exceptions are always to be found. But during my entire trip through England I had very little to complain about regarding the treatment I received at the hands of my hosts.





"THE GARDEN PARTY," A GOTHIC-RENAISSANCE TRANSITION TAPESTRY DESIGNED AND WOVEN IN AMERICA.



TAPESTRIES

FROM THE

ARCHITECTURAL

POINT OF VIEW

BY GEORGE LELAND HUNTER



Part II. (Continued)

JUST AS A LARGE proportion of the late Gothic tapestries show strong Renaissance influence, so many of the early Renaissance tapestries show Gothic influence. This is noticeable in the Story of Notre Dame du Sablon, a set of four, first revealed to the modern world of tapestry lovers by the publication of the catalogue of the Spitzer Collection in 1890. The most interesting of these pieces is illustrated on page 138 and is now in the Brussels Museum. Like many of the late Gothic tapestries, it consists of three main scenes in triptych arrangement. Each of the outer scenes illustrates the Latin couplets above and below, the one in the middle the Latin couplet below.

The prominent figures in the central

scene are the Emperor Charles V and his younger brother Ferdinand, who carry the litter upon which stands the image of Our Lady of Sablon. The resemblance between Charles V and the present King of Spain is striking. The personage who appears in all three tapestries with staff and sealed letter is the donor Francis de Taxis, Imperial postmaster. The set of four tapestries to which this belonged was completed in 1518 as shown by the inscription in the right border.

The most famous tapestries in the world are the Acts of the Apostles set at the Vatican. The most famous cartoons in the world are the Acts of the Apostles set in the Victoria and Albert Museum. But about these cartoons



"NOTRE DAME DU SABLON," A SUPERB RENAISSANCE TAPESTRY.
 In the Brussels Museum. The personages carrying the litter in the centre panel
 are the (later) Emperor Charles V and his younger brother Ferdinand.



"THE CURE OF THE PARALYTIC," A XVIIITH CENTURY TAPESTRY WOVEN AT MORTLAKE FOR CHARLES I OF ENGLAND FROM ONE OF THE RAPHAEL CARTOONS, "THE ACTS OF THE APOSTLES." It is now in the French National Collection.

painted by Raphael and the Vatican tapestries woven from them there is nothing transitional, little Flemish, and nothing Gothic. Panels and borders alike represent the full and free expression of the Italian Renaissance.

The tapestries were woven in Brussels from the years 1516-19 under the supervision of the Flemish painter Barend Van Orley, a friend and pupil of Raphael, in the shop of Pieter Van Aelst, tapestry-weaver to Philip the Handsome, and to Philip's son, the future Emperor Charles V.

Of the Acts of the Apostles set many duplicates were made in the Sixteenth and Seventeenth Centuries, all of which have borders different from those of the original set. The best set with the best borders was that woven about 1530, now in the Royal Spanish Collection. An important Seventeenth Century set that survived is the one woven by the great Jan Raes of Brussels, that once was a part of the Duke of Alba's collection and now hangs in Hampton Court, having been presented to the British nation by Baron d'Erlanger. Another important Seventeenth Century set is the one now in the French National Collection, woven at the famous Mortlake works in England for Charles I. Another important Seventeenth Century set is that in the Beauvais Cathedral signed by Philip Béhagle, proprietor of the Beauvais tapestry works at the end of the Seventeenth Century.

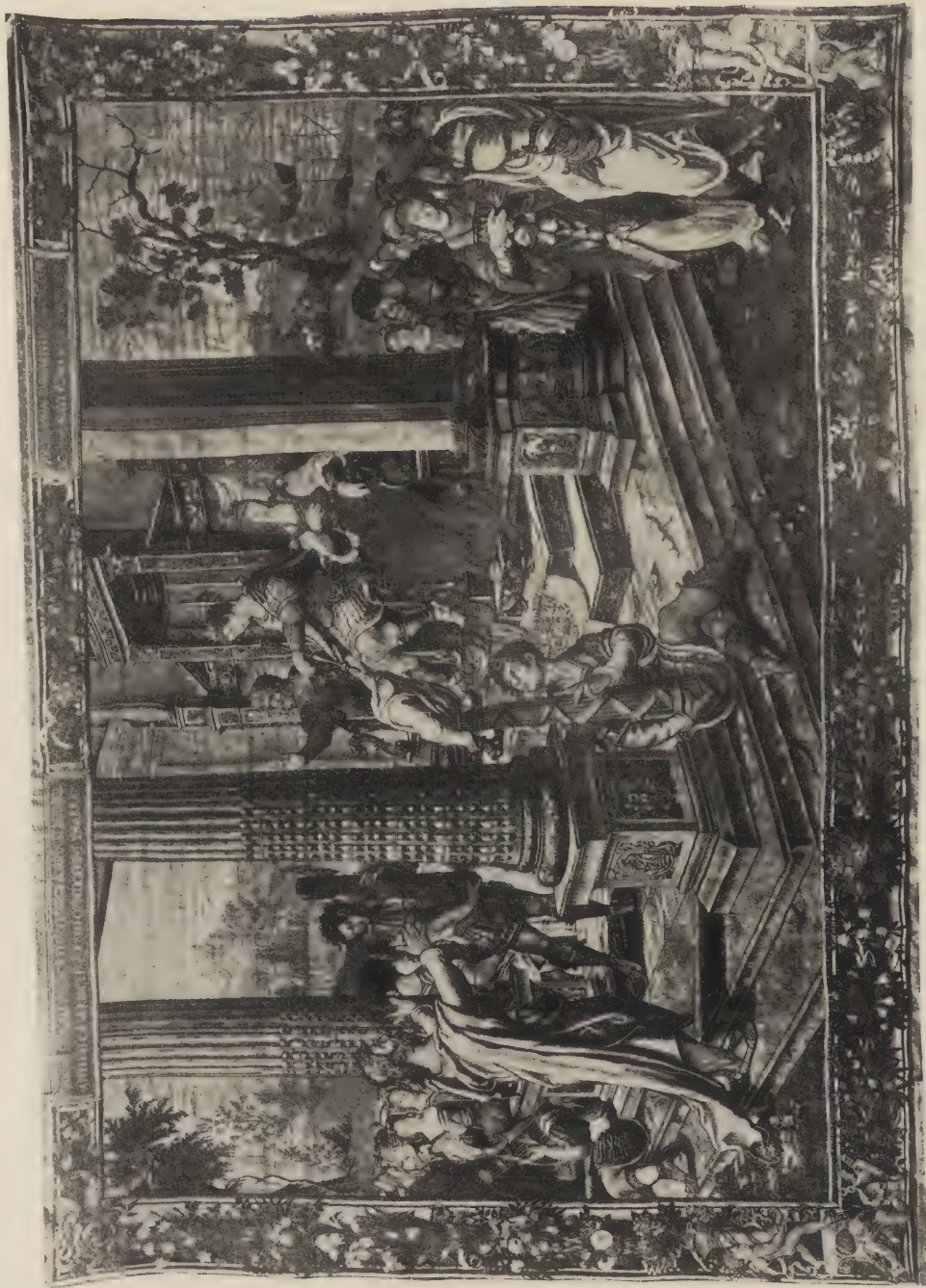
Of the original set woven for the Vatican and still preserved there, photographs of extraordinary size have been specially made for Mr. Morgan and by him presented to the Museum. They hang in the photograph room in the library of the Metropolitan Museum. These photographs show the tapestries as they are now and illustrate the fact that the bottom borders were woven in imitation of bas-relief and pictured the life of Leo X before he became Pope. The almost complete absence of side borders is due not altogether to the ravages of time, but principally to the fact that the spaces which were to receive the tapestries in the Sistine Chapel, for which they were woven, permitted of only

seven side borders instead of twenty for the set of ten tapestries. The subjects of the tapestries are as follows:

(1) The Miraculous Draught of Fish, (2) the Charge to St. Peter, (3) the Cure of the Paralytic, (4) the Death of Ananias, (5) the Stoning of St. Stephen, (6) the Conversion of St. Paul, (7) Elymas Struck Blind, (8) the Sacrifice of Lystra, (9) St. Paul in Prison, (10) St. Paul on the Areopagus.

While the Angers Apocalypse mentioned above, and other remarkable sets of tapestries, were woven in Paris in the Fourteenth Century, it nevertheless is true that the centre of tapestry weaving during the Fourteenth, Fifteenth and Sixteenth Centuries was the French-Flemish cities situated in what is now Belgium and the extreme north of France. During the last part of the Sixteenth Century, the industry was to some extent restored in Paris. In the first half of the Seventeenth Century, the tapestry works of Paris encouraged and developed by Henri IV and Louis XIII; and the tapestry works at Mortlake in England, founded near the end of the reign of James I through the influence of Prince Charles and the Duke of Buckingham, usurped much of the glory that had formerly distinguished Brussels, Arras, Tournai, Bruges and Enghien. The period of prosperity for the Mortlake looms was brief and little was done there after 1636. The various looms of Paris were combined in 1667 under Charles LeBrun into the Furniture Factory of the Crown, the institution now called the Gobelins. At the same time was founded the Beauvais tapestry works, which was not at first a state enterprise like the Gobelins, but a private one with royal protection.

During the Seventeenth Century and the first third of the Eighteenth, tapestries of the highest merit continued to be woven in Brussels and in some other Flemish cities. But the moment the Gobelins became a state institution, it carried with it not only the prerogative associated with the tapestry works of the country that was setting decorative styles for the rest of Europe, but it also benefited by the immense sums Louis



"ST. PAUL BEFORE AGRIPPA AND BERENICE," A RENAISSANCE TAPESTRY. (In the Royal Spanish Collection.)

XIV was willing to pay for tapestries. So that from the reign of Louis XIV on, French tapestries stood higher in popular estimation than Flemish ones. By the middle of the Eighteenth Century the industry had become French, and since then those who wish to establish tapestry works in other countries, have gone to France for their weavers, just as in the Seventeenth Century France and England went to Flanders.

The centre of commercial production of tapestries for the open market—wall tapestries and especially furniture coverings and rugs—is now the little town of Aubusson, 200 miles south of Paris. When the industry was founded here no one knows. Local pride likes to date it from the year 732 A.D. What we know is that in 1664 in a report to the King, the tapestry merchants and weavers spoke of the manufacture as "established from time immemorial." In the early part of the Eighteenth Century the Aubusson manufacturers received considerable assistance and encouragement from the French government.

At the Paris Exposition in 1900, the exhibits of three Aubusson manufacturers were awarded Grand Prizes—the same award as to the government works at Gobelins and at Beauvais.

At the same exposition the Grand Prize was also awarded to four tapestries picturing the Holy Grail, designed by Burne-Jones and Morris and Dearle, and woven at Merton near London, England, at the works established there by William Morris. One of these tapestries, picturing the Knights of the Round Table and the Maiden of the Quest, I like better than any other tapestry design made since the Sixteenth Century and consider worthy to be compared with the Tapestries of the Golden Age.

While it was Burne-Jones who did the figures, it was William Morris who was responsible for the backgrounds, the borders, the coloration and the weaving. This man was a genius. He had more influence on the industrial arts, I believe, than any other man in the world's history. His acuteness of vision and his sensitive appreciation of texture, form

and color, were remarkable. While ordinary persons are blind to the obvious qualities of tapestries and rugs, damasks and brocades, wallpapers and marble and brick and wood; they spoke to Morris a language which he understood. That was the secret of his success in reviving the art of tapestry weaving at Merton. He understood texture. He knew the difference between 18th century tapestry texture and that of the 16th century, and he deliberately and intelligently went back to the texture of the Golden Age of tapestry, solving the difficult problems of weaving on the loom with his own mind and hands, and then teaching others the art.

In all other great revivals of tapestry trained workmen have been imported from the centres of tapestry production—from Flanders to Italy and other countries in the 15th century; from Flanders to Paris and Mortlake at the beginning of the 17th century.

But William Morris imported no workmen from abroad. He had a loom set up in his bedroom at Kelmscott House, Hammersmith, and, in order to avoid interfering with his other occupations, used to arise betimes and practice weaving in the early hours of the morning. In four months during the year 1879 he spent no less than 519 hours at it. His diary is headed: "Diary of work on Cabbage and Vine Tapestry at Kelmscott House, Hammersmith. Begun May 10th, 1879."

How highly Morris regarded tapestry is clear from a letter he wrote in November, 1877, to Mr. T. Wardle. In the course of it he says:

"Nothing is so beautiful as fine tapestry. . . . Tapestry at its highest is the painting with colored wools on a wall."

The next year, in March, he wrote to Wardle:

"I enclose a warp from a 16th century piece of tapestry, which as you see is worsted: the pitch is twelve to the inch: nothing in tapestry need be finer than this. In setting up your work you must remember that as tapestry hangs on the wall the warps are horizontal, though of course you weave with them vertical."



"THE STAR OF BETHLEHEM" IN EXETER COLLEGE CHAPEL.
A TAPESTRY DESIGNED BY BURNE-JONES AND MORRIS
AND DEARLE AND WOVEN AT MERTON, IN ENGLAND.



"THE MIDDLE AGES," A MODERN GOBELIN TAPESTRY DESIGNED
BY F. EHREMAN FOR THE PARIS BIBLIOTHEQUE NATIONALE.

Morris had no doubt about the warp threads (that show as ribs) of wall tapestry being horizontal. He had looked at tapestries with his eyes open.

At Aubusson today they not infrequently weave wall tapestries with vertical ribs and one of these was even awarded a grand prize at Paris in 1900. Moreover, one of the master workmen at the Gobelins assured me that the only reason for weaving wall tapestries with horizontal ribs was that it is easier to do the work that way on account of the main lines of the design to the warps. He did not know, nor could I convince him, that a wall tapestry with vertical lines is an abomination and that a fundamental part of tapestry texture for wall hangings is the presence of strongly marked horizontal ribs in relief. This of course does not apply to narrow friezes or small pieces that are remote from the eye and have a strong and definite architectural framing.

PART III.—TAPESTRY WEAVING IN AMERICA.

The weaving of tapestries in America dates from the month of February, 1893, when the late William Baumgarten set up the first loom in New York, under the direction of M. Foussadier, previously master-workman of the Royal Windsor Tapestry Works that had flourished for a short period in England. The first piece of tapestry made was a small chair-seat that remains as an heirloom in Mr. Baumgarten's family. The second piece, a duplicate of the first, is now in the Field Museum at Chicago.

Other weavers soon followed M. Foussadier, and before long it became necessary to move the works to Williamsbridge in New York City, a district where many French people still live, thus making the French weavers feel at home.

Mr. Baumgarten told the story of the founding and development of the first tapestry works in America before the Society of Antiquaries at the Chicago Art Institute, March 15, 1897.

Of the six largest tapestry works in the world—the Gobelins, Beauvais, three at Aubusson, Williamsbridge—the Wil-

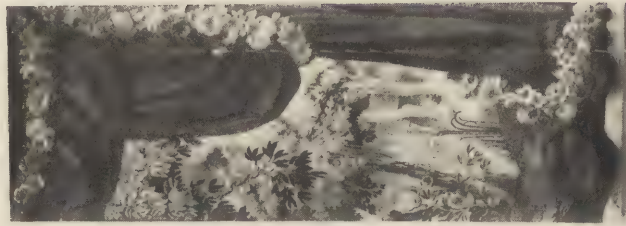
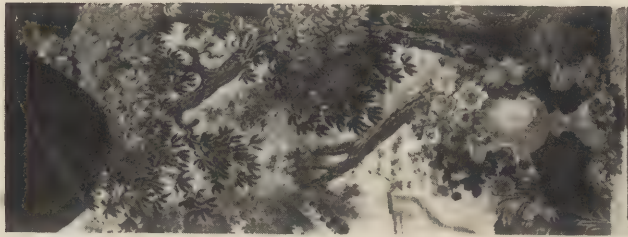
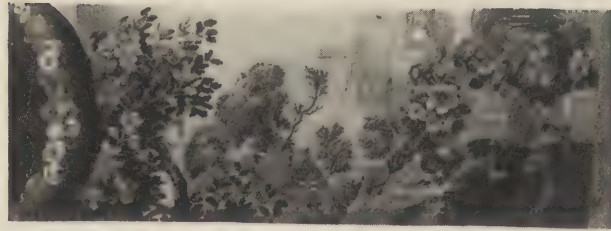
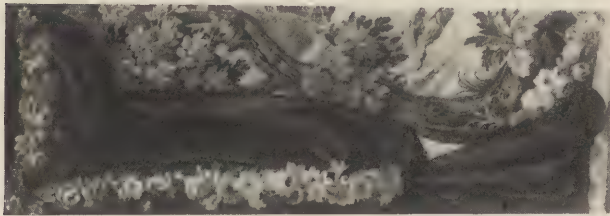
liamsbridge one is by no means the least important as regards quality or output.

Among important tapestries woven at Williamsbridge are a set of ten verdure panels for the Rhode Island State House, a large verdure for the directors' room of the New York Life Insurance Company, and many for private residences, the most important being "The Triumph," a series of tapestries, picturing a triumphal procession, that adorns the walls of both the upper and lower halls of a palatial residence in New York City. This residence is better equipped with fine modern tapestries than any other residence in the world. The wall panels and the cantonnière in the Louis XVI reception room are unusually interesting. So, too, are the tapestry rugs that cover the floors of the chambers. This residence shows how ancient and modern tapestries can be successfully used in the same room, which renders it possible for those having furniture upholstered in ancient tapestry to have wall tapestries designed and woven to match, or for those having fine wall tapestries to have furniture coverings woven to match.

An interesting fact about the damassé panels containing small pastoral scenes after Boucher is that the Frenchmen on the jury at the St. Louis Exposition were unwilling to believe that they had been made in America. They insisted that such perfection of weave was impossible outside of France. It was only when confronted with the evidence of those who had seen the panels on the looms that they yielded and consented to award them the Grand Prize.

Other American tapestry looms are those established in February, 1908, by Albert Herter, in New York City. Though a painter by profession, Mr. Herter has a keen appreciation of tapestry texture, which he has developed by personal work at the loom. Like Mr. Morris, he has a particular liking for Late Gothic "verdures with personages," as illustrated by the frieze woven for the hall of Mrs. E. H. Hariman.

Among other American tapestry looms, the most important are those es-



TAPESTRIES IN THE HALL OF THE HOUSE OF REPRESENTATIVES
IN THE RHODE ISLAND STATE HOUSE, McKIM, MEAD AND WHITE.
ARCHITECTS. These tapestries are five of a set of ten designed and woven in
America. The two groups face each other on opposite walls. They are in very coarse
weave, and the pronounced texture softens the interior most effectively. These are
the most important tapestries ever made in America for a government building.

published two years ago in New York City, by W. F. Stymus.

In response to a letter sent out by the Editor of the Architectural Record to several prominent architects, asking an expression of opinion on the use of tapestries in certain types of building, the following answers were received:*

Mr. Ralph Adams Cram, of the firm of Cram, Goodhue and Ferguson, wrote:

"I am glad you asked me for my opinion as to the use of tapestries in churches, as it gives me an opportunity to say something in their favor.

"In my opinion, and as one who has been involved in church building for a generation, I have no hesitation in saying that, next to good stained glass, good tapestries can do more toward perfecting a church interior than any other kind of decoration. Always in the past the great cathedrals, abbeys and churches were hung with tapestries whenever these were available and could be acquired. Fortunately one or two examples still exist in France of their use in this connection, and it is only necessary to see these to realize their immense value. Stained glass, properly considered, is strictly an architectural decoration, and the same is true of tapestries. Each has a quality that adapts it with peculiar delicacy to its architectural environment, and each works toward that restoration of color to church building which was so intimately a part of the art in its great days, and which has so largely escaped consideration in the great restoration now going on in this particular direction.

"From a purely practical standpoint, also, tapestries are of the utmost use, since they can do so much toward correcting the acoustical difficulties that frequently arise in a masonry interior, as they absorb in a measure the waves of sound that otherwise would be reflected back to the speaker and cause an echo and a resonance that make intelligible speaking sometimes almost impossible.

"Properly designed—*i. e.*, with regard

to their architectural function, and made after the ancient fashion—genuine tapestries may be made one of the greatest agencies for the beautification of a church interior, and for the completion of the religious and architectural effect, and I regard with the utmost enthusiasm the steps now being taken toward restoring to religious art this most unique and exquisite element."

Mr. Philip Hiss, of the firm of Hiss & Weekes, himself a collector and connoisseur, says that he believes that we are entering upon a period of extended use of tapestries for decoration, and that, as a decoration, they add dignity to interiors of private residences wherever they are used. He also believes in every effort being made by the architects of this country toward the encouragement of tapestry designing and weaving.

Again bearing on the use of tapestries in private residences we have the testimony of Mr. James Gamble Rogers, of the firm of Hale and Rogers, who says:

"Tapestries are the best and surest decoration possible. Even when they are not in the same style as the room, they are always beautiful in themselves and dominate the situation. They give a richness and depth of color that, without them, is lacking in almost all interiors. Velours, brocades and damasks give brilliancy and color, but they are too flat, tapestries alone having the requisite depth. I agree with Mr. Hunter that the thing of most importance in tapestry is *texture*. The weave is of more importance than the design. I count color as second in importance, design as third in importance and the story as fourth in importance. In fact I never ask the story of tapestries I am buying. If the texture and color are right, and the design passable, I am satisfied.

"Of course it is possible to make mistakes in the use of tapestries. Some people who make them a fad use too many in one room—people who have what I call the 'adding' disease. Tapestries are so significant and so vital that they require more room decoratively than other art objects of equal size.

"It is very easy to hang tapestries wrongly and many people do so. They

*For assistance in the preparation of this article I am deeply indebted to Frank Alvah Parsons and to the architects who so courteously responded.



A MORTLAKE TAPESTRY BELONGING TO PHILIP HISS, ESQ. Now on exhibition at the Metropolitan Museum.

must be placed rightly in order to produce a satisfactory effect. If they are placed badly, they spoil a room instead of perfecting it. In this they are like old furniture, which I use very freely in furnishing residences, but which, because badly placed, spoils so many interiors."

The never-failing success in the effective use of tapestries from the architectural point of view has always char-

acterized the work of Mr. Charles A. Platt, who may be indirectly quoted as follows:



AN AMERICAN REPRODUCTION, PERFECT IN STYLE AND TEXTURE, OF ONE OF BOUCHER'S FAMOUS "NOBLE PASTORALE" SET WOVEN AT BEAUVAIS (18TH CENTURY).

acterized the work of Mr. Charles A. Platt, who may be indirectly quoted as follows:

"The best illustration of what I think of tapestries for private residences is the fact that I use so many of them, not only in Italian interiors, but also in Colonial interiors. Of course not every room is suited for tapestries and it is also important that the tapestries should be in the same scale as the room. In

large Colonial rooms I often use verdures of the Oudenarde type copied and developed in Aubusson, although I prefer the tapestries of the Renaissance, especially those of the early Renaissance with comparatively small figures. While there are many rooms in which tapestries may or may not be used according to the taste of the owner, there are some in which tapestries are imperative. I refer

to rooms in the style of the Italian Renaissance, with plain walls. Such rooms simply must have tapestries to give them character and color and warmth. "The tapestries of the Louis XV period I like least of all, but I should not hesitate to use a Boucher panel in a Colonial room provided the tone was especially *uni* and the borders were not too obtrusively a woven imitation of a gilded wooden frame.



"TAPESTRIES FROM THE ARCHITECTURAL POINT OF VIEW."
DINING ROOM, RESIDENCE OF THE LATE COL. JOHN JACOB
ASTOR.
CARRERE AND HASTINGS, ARCHITECTS.

"While in Paris recently I devoted a great deal of time to looking at tapestries and was impressed with the fact that good examples are becoming very rare. Of course what I was after was 16th century pieces, but incidentally I was obliged to look at a good many French ones of the 18th century."

Mr. H. P. Knowles, well-known as an architect of Masonic buildings, contributes a special note of exceptional interest—a note, incidentally, which could well be paraphrased to apply to other specific types of buildings, such as clubs, libraries, theatres, etc.:

"Replying to your inquiry concerning the adaptability of tapestries for decoration for fraternity buildings, it is my belief that no other form of decoration is more suitable. The majority of lodge rooms are oblong in shape, with moderately high ceilings and side walls usually divided into panels, which lend themselves to decorations which will form a background for the architectural detail. These panels are usually left plain, or if decorated, unfortunately the type selected is too often a very inferior example of painting.

"In Masonic buildings, the ritual and dramas of the fraternity are replete with subjects for the tapestry weaver's art. Many scenes may be imagined in connection with the building of King Solomon's Temple (the story of which forms an important part in the ritual of the Masonic fraternity); the four cardinal virtues and the principal tenets of the order suggest at once subjects that are ideal for tapestry decoration. The stories of the Crusaders, which form part of the ritual in the Commanderies, also afford interesting subjects; in fact I cannot imagine any building, other than a church, that lends itself more admirably to the tapestry art than a large Masonic Temple. The wonderful texture of this material, with its strong horizontal lines and lighter vertical lines, combines perfectly with the work of the architect, and it is with pleasure I learn that the Architectural Record is taking up the study of this fascinating branch of art."

Returning again to expert opinion on

the effective use of tapestries in private residences, we are indebted to Mr. B. Bancroft Smith for the following:

"There is evidence of a rapidly growing interest in tapestries, and more than ever are they receiving proper consideration in the preparation of designs for interior work.

"In private residences, tapestry is most effective when used for wall hangings, and surpasses for the purpose all other mediums of decorative expression. The comparatively coarse texture produced both by the material used and by the well indicated horizontal rib lines of the weave, provides a surface admirably adapted for a background and for transition between the strictly architectural features and the portable furnishings of a room. In the creation of perspective tapestries are invaluable, and the picture interest in color and drawing adds materially to a decorative scheme. As wall coverings they should be hung from the top edge by concealed hooks, never framed or stretched flat against the wall surfaces, and where possible they should be hung over stone, marble or cement walls having little or no architectural treatment.

"Tapestries may also be effectively used for window and door hangings and for furniture coverings. Especially effective are old Renaissance borders in framing doorways and as cantonnières, as valances and table mats, appliqué on plain stuffs, as screen panels, etc. But it is of prime importance in making the original plans that the architect should provide spaces and places where tapestries shall produce a definite and preconceived result. This done, the main decoration of the room has been accomplished."

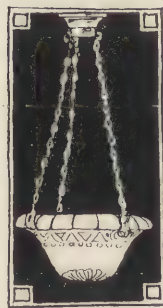
Which adduced testimony, gleaned from comparatively few sources, goes to show far more conclusively than may generally be realized, the significant status of the tapestry in architecture.

What the last few years have begun, the next few must appreciate, and tapestries, which were one of the very earliest esthetic solutions of the wall decorating problem, will be found to be, as well, the ultimate solution.



THE NEW LIGHTING

BY
HARRY PICKHARDT



It is well known that a decorative treatment can never be so planned that everyone is sure to be pleased with it, and owing to the great variety in tastes, what will appeal to one may be absolutely distasteful to another, depending on the individual fancy, while the proper and most harmonious lighting arrangement of an interior is not the least of the problems that confront the master builder. It is true, however, that there is always a best way to perform each task, and the rule applies as well to any lighting scheme including such as must combine the decorative as well as the purely illuminative requirements. While it would be vain to attempt to formulate a set of rules for the use of the designer of lighting so that he might always be sure beforehand of pleasing all those who would have an opportunity of seeing the results of his work, it is our hope that by pointing out some of the features of the recent lighting and giving examples of what is being done in this line, the individual who has similar work in hand may find something which he may apply to his own use.

It is not so long ago that in planning for the lighting of a building, the greater part of this work, in fact practically all, including the designing of the fixtures,

their construction and even installation, and very often the number of fixtures to be used as well as their location, was left in the hands of the fixture manufacturers. The result was, as might be expected, considering he was in the metal business, the fixtures used were generally massive, ponderous affairs—the more metal used the better—the lights and accessories being incidental. As far as illumination went, there was usually a more or less unsatisfactory allowance per square foot of floor area no matter what the room was to be used for or how decorated, and the result might be what it would, it was left that way.

Today the lighting man must know the height of the room as well as its area. He must determine the amount of light required, for the use to which it will be put. He must have a good idea of the color of the room and its decorations and furnishings. He must so plan the lighting that each portion of the room and each of its ornamental features will have that amount and kind of light as will best enable it to serve its purpose. We can no longer leave these details to care for themselves. The means we have of carrying out our work are also much greater in number and offer more choice in selection. We now



Figure 1.

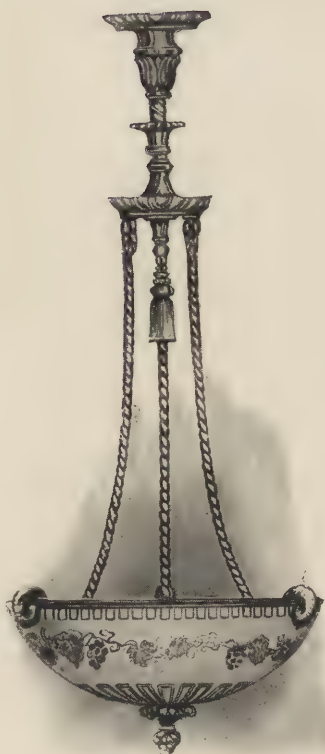


Figure 2.

have instead of the open flame gas burner and its successors, the Tungsten lamp with its dazzling light, which compared with the other electric lamps is inexpensive to operate, so economical in fact that we can well afford to modulate the strong rays to a softer, more agreeable and harmless state by using a diffusing globe. While in modifying the light of the Tungsten lamp to our requirements, a small per cent. is lost in efficiency as expressed in watts of energy required to lumens of light radiated, the seeability rate is wonderfully improved and the lighting is made to fulfill properly its important part, instead of being a discordant feature in the decorative scheme. The Tungsten lamp, being made in a number of sizes, it is but natural that the larger lamps have come into use, hence the decrease of the old fashioned many-armed fixture with its large number of lights, and the ever increasing use of the one light unit, until today the unit has come to be the stand-

ard, and with good reason. With the 150 watt 120 candle power, the 250 watt 200 candle power, or the 500 watt 400 candle power lamps, one can have as much light from a single source as could be wanted for decorative requirements, and besides the several other advantages a single lamp can be better controlled as to its effects and it can be more readily handled by the fixture designer, especially as regards the globe to be used with it.

One of the features of the recent progress in lighting was the indirect system or that in which the lamp was suspended with an opaque reflector beneath it so that the light is thrown on the ceiling and from there redirected downward and all about the room, the light source being invisible. While this system has several good points to recommend it, including its claimed natural daylight effect, uniform illumination, and the absence of a source of light to stare on in the eyes, to say nothing of the novelty, and though the system has many strong advocates who claim great superiority for it, indirect lighting is by no means to be accepted as a universal panacea.

In the first place it should only be used with light ceilings and, needless to say, ceilings that are not too high, otherwise its inefficiency becomes too great. Perhaps its greatest fault is its almost perfectly even illumination, and lack of shadows in a room so lighted. Some maintain that this condition produces a restlessness almost indefinable, due no doubt to our eyes being accustomed to light whose source we can see and which has a definite direction, producing shadows which accentuate the outline of objects, making them easier to see. It has even been stated that a strained effect is produced on the eyes of one having to endure this light for a lengthy period. It appears then that while the eyes should see the source of light, it must not be so bright as to be harmful.

When a definite want is felt its fulfillment is usually forthcoming, and it did not take long to find a means of producing light which embodied as far as possible the advantages of the indi-

rect system leaving out its faults, and the good features of the older direct lighting, the result being the semi-indirect system.

The features of this method of lighting are a light reflected upward toward the ceiling as in the indirect system, but there is at the same time a direct light of low intensity transmitted about the room, the light source of course being visible. One of the first means of accomplishing this effect was attained by surrounding the Tungsten lamp with a shallow dish made of carved alabaster. This carried out the idea of the old time sanctuary lamp with its perpetual light.

These hand carved alabaster bowls, while making a beautifully mild light, have since been replaced, no doubt partly on account of the great cost of the former, by different kinds of glass bowls which are in many cases even more beautiful and effective than the alabaster, as the glass bowls are capable



Figure 3.

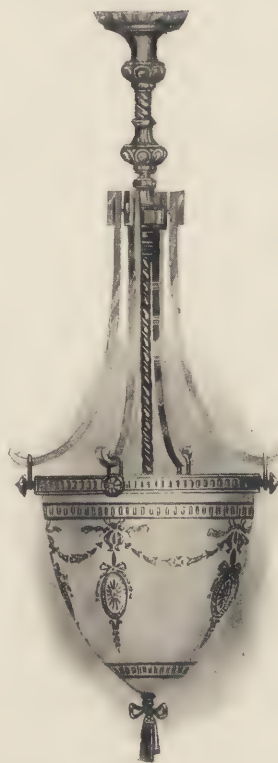


Figure 4.

of greater freedom and more minute detail in design and structure.

Unusually fine globes of a new glass resembling old alabaster have recently made their appearance in the market, some of them having a rich soft brown tone which, when lighted produces a light that is uncommonly mellow and agreeable and being fairly dense in nature acts as a good reflector, giving the indirect effect. The brown tone while warm and of pleasing color, it will be noted, is neutral as regards color harmony and can be used with any other color in a room's decoration.

The advantage of these globes is that they are perhaps equally as fine in appearance when unlighted as when lighted and unlike the too bright appearance of globes used in direct lighting, even when lighted, these globes on account of their low brilliancy are not obstrusive and one is almost unconscious of their presence.

It will be seen that with these large

globes the fixture becomes secondary and the globe is now the chief feature of the lighting equipment, and is the starting point in designing the same, the fixture being built around it.

The old time fixture with its mass of metal and but few lamps, and usually little or no glassware, has practically passed away.

Some of the new semi-indirect bowls recently seen have been carried out in the period decorations and are really good examples of the styles they conform to, matching in detail the other features of the room of this period in which they are used. While we have no precedent from which we can copy the present day lighting fixtures as a whole, electricity not having been in use during the periods represented, the ornamental details are true to their respective styles.

Figure 1 is an example of the Adam style and while not having the semi-indirect features on account of the metal top above the globe proper, complies nevertheless with the newer idea in lighting. While a globe such as this is somewhat dense in structure for direct lighting, the light radiated is increased by the upper metal top on the globe being silvered inside, and the lighting effect resulting is very good.

Figure 2 is a good illustration of the semi-indirect unit as the top of the globe is entirely open, and its shape is such that its light is properly reflected upward. This style is after the Colonial period, and while the design is altogether pleasing, it is also very effective as a light giver when used with a lamp such as the 250 watt size.

Figure 3, representing the Italian Renaissance style, while perhaps not as efficient as far as illumination goes, is unique in design, and quite in keeping with the modern tendency in lighting.

Figure 4, with its graceful lines is a representation of the Renaissance style. The shape of this globe though not productive of the greatest amount of light

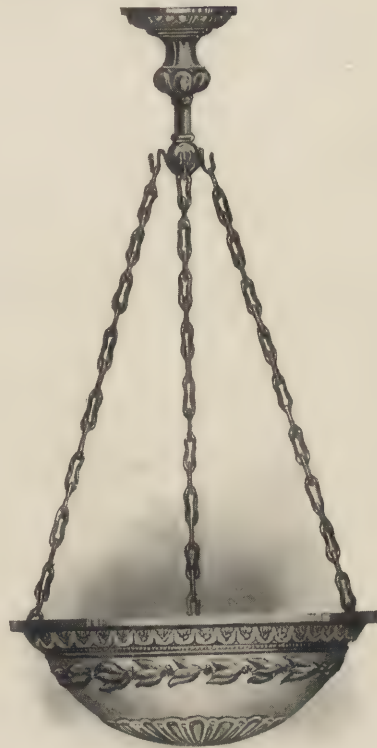


Figure 5.

reflected upward, yet fairly carries out the semi-indirect idea, and as the whole globe becomes equally bright when lighted and not a central spot only, the result is such that, he would be indeed hard to please, to whom this design does not appear attractive.

Figure 5, with the laurel leaf effect, follows more closely the modern school of decoration and is another very good example of the semi-indirect system. On globes of this style the pattern stands out in relief as on chiseled marble.

There have been shown here but a few examples of the new lighting, but the variety of styles and the general high quality of the really good lighting appliances recently produced indicates as plainly as can be the great progress being made in this field.



A HOUSE AT KNOXVILLE, TENN. SPENCER AND POWERS, ARCHITECTS.
THE MASONRY WALLS GROW NATURALLY OUT OF THE GROUND, ON
AN ABRUPTLY SLOPING SITE. THERE IS A ONE-CAR GARAGE UNDER THE
PORCH, OR SUN-ROOM.

BUILDING the HOUSE of MODERATE COST

The Sixth Article



By Robert C. Spencer,
F.A.I.A.

THE BASEMENT.

BEFORE DISCUSSING the relative merits of those building materials which are exposed to view between the ground and the roof and their possibilities from the designer's standpoint, let us consider that very important horizontal slice of the house which is below ground.

It is not the purpose of these articles to teach the experienced architect nor to tell the layman just how to build in a given case.

There are excellent technical books on building construction and superintendence, which cover the entire field.

But it is possible that some of my younger confrères upon whose library shelves these excellent and comprehensive works repose may be a bit careless or inexperienced as to certain details of these very important parts of the house.

The first requisite of a good basement is a *soil* that is at least fairly good,—free, at least, from springs, muck and quick sand. It is rarely indeed that an owner cannot choose a site which is free from these troublesome defects, which may be so serious as to render the construction of foundations which shall be tight, dry and stable against settlement exceedingly difficult and too expensive to be worth while. The ideal soil on which to build a house is, of course, not ordinary soil at all, but sand or gravel, preferably the former, or a mixture of both in which the surface water drains away so readily that even in the heaviest rains and with walls of the most ordinary construction the basement is almost always sure to be dry,—while danger of settlement through scant breadth in the footings is reduced to a minimum. A building on sand or gravel also effects a very decided saving in materials, such as mortar and concrete, which is quite an item in the construction of a good-sized house. Stiff clay with little or no admixture of sand or loam, while giving

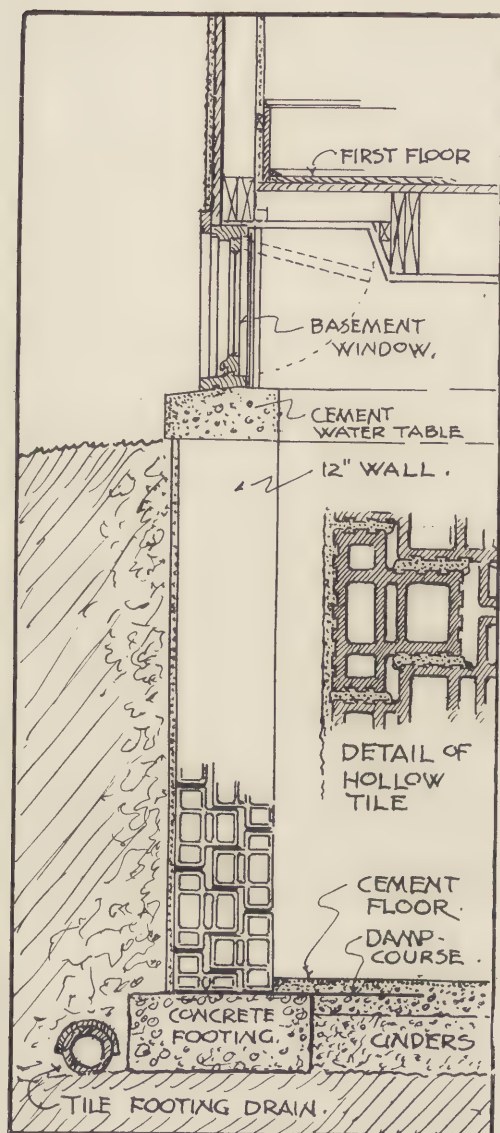
a fine bearing for walls, makes of the excavation for the basement an ideal basin for holding large volumes of rain water, as is evident at once when the "hole-in-the-ground" has been dug and the first heavy rain comes, unless special precautions have been taken early to carry off the water from the lowest point in the excavation. Even more necessary, therefore, in stiff clay soil than in one which is soft and somewhat springy are footing drains outside the base of the walls to intercept and drain off as far as possible all surface water.

The junction of basement walls and concrete floor should be made water tight by means of a damp-course of some suitable elastic material to prevent any water and dampness which may reach the footings by capillary attraction of the floors above the ground level.

If soft and springy spots are encountered in the excavation they must, of course, be dug away as far as possible and thoroughly drained to some outlet at lower grade than basement level. In country work where there are no sewers, this matter sometimes proves troublesome to accomplish and may render a change of site advisable.

While it is rarely done in residential work, test borings to determine the nature of the sub-soil should be taken before deciding to build upon a site the character of which is at all doubtful. Even where the general character of the soil in a neighborhood appears to be good, springs and troublesome soft spots may possibly be encountered as well as pockets of quick sand.

When the character of the soil upon which footings are to bear is at all doubtful, it is advisable to provide in the masonry contract for a unit price for additional foundation material not shown on the plans, but which may be



DETAIL SECTION OF BASEMENT WALL.

Built of an improved form of hollow terra cotta tile, showing footing drain, damp course and framing over typical basement window, to give a maximum of light with the minimum height of first floor above grade.

necessitated in order to get down to a good solid bearing.

The choice of materials for basement footings and walls will of course be determined to some extent by local conditions affecting price, and it is not always easy to determine in advance whether brick, rubble stone or concrete

is most economical. In case of doubt, it is well to allow the contractors the option of using any one of several materials, specifying the minimum thickness of the various walls for each material. In some localities the comparative bids of contractors on such materials as common brick and concrete, for example, vary so considerably as to indicate that some so-called estimates are merely guesses and not very good guesses at that. For example, we recently received bids involving a variation of several hundred dollars for the foundations of a \$12,000 house where quotations were requested on the comparative cost of brick and concrete.

Below grade, and for a short distance above it, concrete, even where sand and gravel must be hauled from a considerable distance, appears to be the most economical material for a good solid foundation. There is a wide difference, however, in the cost for which different contractors can do this class of work. A man who is thoroughly familiar with this material and who owns a good power mixing machine can pour as high as 125 cubic yards in a working day, while another man less expert at building forms and employing hand labor for mixing, could only do the work at a much higher cost.

Where Northern work must be commenced very late in the fall, or in the winter, concrete, however, is out of the question, and the walls must be built of stone, brick, concrete blocks, or hollow terra cotta tiles. Walls of the latter as now made are not only sufficiently strong for a large house, if built of sufficient thickness, but are so designed as to render the walls of which they are constructed practically impervious to water and frost.

The accompanying drawing illustrates the manner in which all "through" mortar joints are eliminated when this form of hollow tile is used; the heavy, black lines between the tiles indicating the mortar. There are no vertical mortar joints whatever. This drawing also illustrates other essentials of a good foundation, such as waterproof cement plastering on the outside of the wall,

damp course forming a water-tight bond between floor and walls at the top of footings, agricultural tile footing drains, and framing over typical basement windows to bring the first floor as near the ground as is consistent with reasonably good natural lighting of the space below ground.

While it has long been considered good practice to apply a heavy coating of Portland cement plastering to the outer surfaces of basement walls (what-

and a fill against them of gravel or cinders to allow the surface water to pass quickly to the drain instead of forcing its way into the masonry should be dry enough when new to suit any one. As it costs little, however, to incorporate with cement mortar the waterproofing preparations above referred to, it seems well worth while to use them wherever water is to be kept out.

The architect's working drawings should show clearly the various depths



STUDY FOR A HOUSE ON A LEVEL SITE WITH FIRST FLOOR TWO FEET NINE INCHES ABOVE GRADE, AND UNBROKEN CONCRETE WATER-TABLE ON THE MASONRY WALLS OF THE BASEMENT. (See page 161.)

ever their construction), such coating does not completely protect a wall from dampness, although it undoubtedly helps. Tar is often used, but it is not a permanent protection.

Within recent years, chemists have invented various waterproofing compounds for admixture with Portland cement, which are of undoubted merit and which appear to be quite effective in new work. As to whether the makers' claims for absolute permanency of their waterproofing preparations can be taken without a grain of salt most architects doubt, and some engineers deny.

Foundation walls which are thoroughly laid in good rich cement mortar, protected in stiff soils by footing drains

as well as thicknesses of all parts of the basement and foundation walls. This statement may seem superfluous, but there are architects and architects, and there are some who trust to luck and later are sorry. I have seen more than one set of plans which did not indicate in any way on the elevations the levels and thicknesses of footings, basement and area floors and masonry underpinning for areas, steps, terrace walls, etc. While these perhaps may be otherwise fully shown, if a sufficient number of wall sections be made in connection with the basement plan, the representation of all exterior work below grade by means of dotted lines involves very little labor and guards against oversight of certain

details, which, if not properly attended to, will cause trouble and embarrassment to the architect. Such as for example a sufficient depth in step and area foundations, not only to insure them from being heaved by frost, but against those settlements which sometimes occur when masonry supports outside the basement walls are not deep enough to go down to solid, undisturbed ground.

Contractors in excavating about the walls of a house often dig below the indicated bottom of step and area underpinnings, and if not watched, they will sometimes back-fill to this indicated level, instead of getting an absolutely solid and permanent bearing for all masonry supports.

Most houses have outside basement area steps. Great care should be taken that the footings to basement walls adjoining such areas be several feet below the area floor, otherwise the walls above may be lifted by frost sufficient to crack them.

While it is seldom necessary to run pipes or conduits in basement walls, the possibility, necessity or advisability of doing so should be considered and pipe chases provided wherever they will simplify the work of the plumbing and heating contractors.

Basement floors should be laid with a good pitch to some convenient drainage point, particularly in the furnace room and laundry. The building laws of some cities not only forbid basement floor drains, protected by water-sealed traps, but also prohibit screw-capped "clean-outs" or sewer connected outlets of any kind whatever, on the ground that if removed for draining a floor or for cleaning a clogged drain, the cap may be left off or loosely screwed in place, allowing sewer gas to enter the building. On a sloping site or wherever there is a sufficient outfall for the purpose, a separate system of floor drains may be safely installed leading to a dry-well at a low point away from the house, and will prove a great convenience, particularly in a laundry where there is often much slopping of water, and where the floor frequently needs a good washing out with a hose.

The writer has never liked the idea of sewer-connected floor drains, except in places where they were certain to be frequently flushed and traps kept sealed. A safe and fairly good substitute may be had by running the several floor drains to grated openings or to a small sump in the form of a settling basin, the clear water from which may be occasionally pumped or bailed out into a basement sink or laundry tub.

In planning the basement of the house of moderate cost, it is now necessary to provide almost every comfort and convenience found in the big house. The only luxury which is usually barred on the score of expense being a gas or coal stove heated laundry drier. A power washing machine, however, either gas or electric, is perhaps, more of a modern necessity where all the work is done by one or two servants than in the large establishment where an expert and husky laundress is kept constantly at work.

The laundry should be almost as well lighted as the kitchen, and will usually require large area windows on two sides.

In many suburbs there is no regular collection of ashes, and an outdoor ash pile is never a thing of beauty. Therefore, an ash bin in the form of a good sized space convenient to the furnace or boiler, enclosed with walls of brick several feet high over which the dampened ashes may be conveniently thrown with a shovel is a great convenience. Such a bin will hold an entire winter's accumulation of ashes, and with a hose connection adjacent to the furnace, so that ashes may always be wet before they are handled, as well as in the bin, this part of the basement may be kept fairly free from dust, and the entire bin full of ashes removed in a few hours at the end of the winter season. In large ash cans it may be passed out through an area window, which if need be may be specially built for this purpose. For large houses small cranes or lifts have been designed, operated by a crank and gear wheels at the basement level.

One feature of basement planning which is often slighted is the inside stairway from the first floor. In the middle class house where the owner and other



ROUGH SKETCH SHOWING HOW MUCH THE HOUSE SHOWN ON PAGE 159 LOSES IN APPEARANCE BY THE ORDINARY HIGH BASEMENT OF RUBBLE STONE, WITH PIERS AND LATTICE UNDER THE PORCH.

members of the family often use it, it should be at a point easily accessible, and not too far away from the dining room or front hall, so that it will not be necessary to go to the extreme end of the house in order to reach it. It should also be of good width and reasonably easy, with ample head room. All very true, but frequently forgotten by architects. It should also be well lighted and substantially built, with treads of oak, birch or maple.

In a house that is to be the home of growing boys, a basement work-shop, lighted by large sunny area windows is a most desirable feature, and there is usually space enough for it, made comfortable in the winter by the heat from uncovered pipes.

The basement is *not* a good place for a billiard room, except for a house on a hillside, where it can get plenty of sun and air. The summer dampness of the average basement tends to injure the cloth and impair the elasticity of the cushions of a billiard table.

The clear height of a basement depends somewhat on the size and proportions of the house. For a small building not over fifty feet long, seven feet four inches is enough. A long rambling

house may require a clear basement height of at least eight feet in order that all piping for steam or hot water may have sufficient pitch from and to the boiler without interfering with comfortable head room. The practice of skimping the basement height of a small house and sinking a hot air furnace in a pit below the floor level is not a good one, as the owner, who is usually his own janitor, will always find the hot air pipes in the way of his head when least expected.

Equally important with sufficient height in the basement itself is the avoidance of unnecessary height above the general ground level. While the first floor of a bungalow may, and perhaps ought to be set seven or eight steps above the ground, five steps, or about two feet nine inches above grade is sufficient for the average house, insuring sufficient height for typical basement windows, and eliminating unnecessary outside steps.

No one feature of the small American house is more unpleasant and inconvenient than the excessive height of the basement above the ground, and no one feature lends more charm and "hominess" to the outward appearance of the aver-

age English house than the absence of any apparent basement.

The speculative builder, of course, finds it cheaper, particularly in stiff clay soil, to save on the cost of excavating by building a high, exposed basement, with two stories above this, each higher than necessary, the whole crowned with a fairly steep roof.

He builds a house of stilted, box-like proportions which is anything but inviting and homelike. Until recently, it has also been the common practice of the speculative builder to carry the masonry walls of his basement to the first story level. Such an arrangement for a frame house is always rather awkward in appearance, and probably costs quite as much as the better method of finishing the masonry walls just above grade and supporting the frame walls at that level with a stone or concrete water table for work of the better class, and one of wood for houses of the cheaper types.

On a site which is approximately level

and which can readily be brought to uniform grade at the building, without unpleasantly forcing the natural contour of the grounds, an unbroken water table or stybolate at grade lends an air of stability and repose to the structure.

In designing a frame house for a sharply sloping or otherwise uneven site, the transition from basement to superstructure is difficult to manage agreeably. In the house at Seattle, illustrated herein, this difficulty has been overcome as well perhaps as was possible in view of the troublesome character of the site.

In designing a house in which the first story at least is of masonry, the necessity of this troublesome transition disappears, and the structure should have no apparent base line whatever, but should spring naturally from below the ground. If the need is felt in the walls of a strong horizontal line it may better be introduced at the level of the first story sills or window heads.



RESIDENCE OF GEORGE MATZEN, ESQ., SEATTLE, WASH.

Willatzen and Byrne, Architects.

Here is shown an ingenious handling of the solid concrete base on a steep hillside.

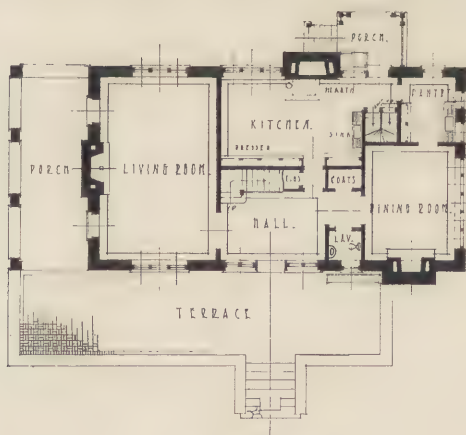
PORTFOLIO OF
CURRENT ARCHITECTURE



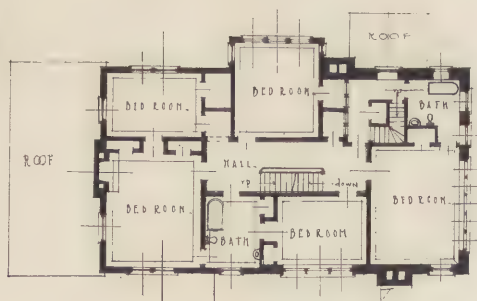
DETAIL—RESIDENCE OF VICTOR C. MATHER, ESQ., HAVERFORD, PA.
Duhring, Okie and Ziegler, Architects.



RESIDENCE OF VICTOR C. MATHER, ESQ., HAVERFORD, PA.
Duhring, Okie and Ziegler, Architects.



First Floor Plan.



Second Floor Plan.

RESIDENCE OF VICTOR C. MATHER, ESQ., HAVERFORD, PA.
Duhring, Okie and Ziegler, Architects.



A HOUSE AT MT. KISCO, N. Y.
DELANO AND ALDRICH, ARCHITECTS.



RESIDENCE OF E. M. STATLER, ESQ., BUFFALO, N. Y.
ESENWEIN AND JOHNSON,
ARCHITECTS.



RESIDENCE OF E. M. STATLER, ESQ., BUFFALO, N. Y.
ESENWEIN AND JOHNSON, ARCHITECTS.



RESIDENCE OF E. M. STATLER, ESQ., BUFFALO, N. Y.
ESENWEIN AND JOHNSON,
ARCHITECTS.



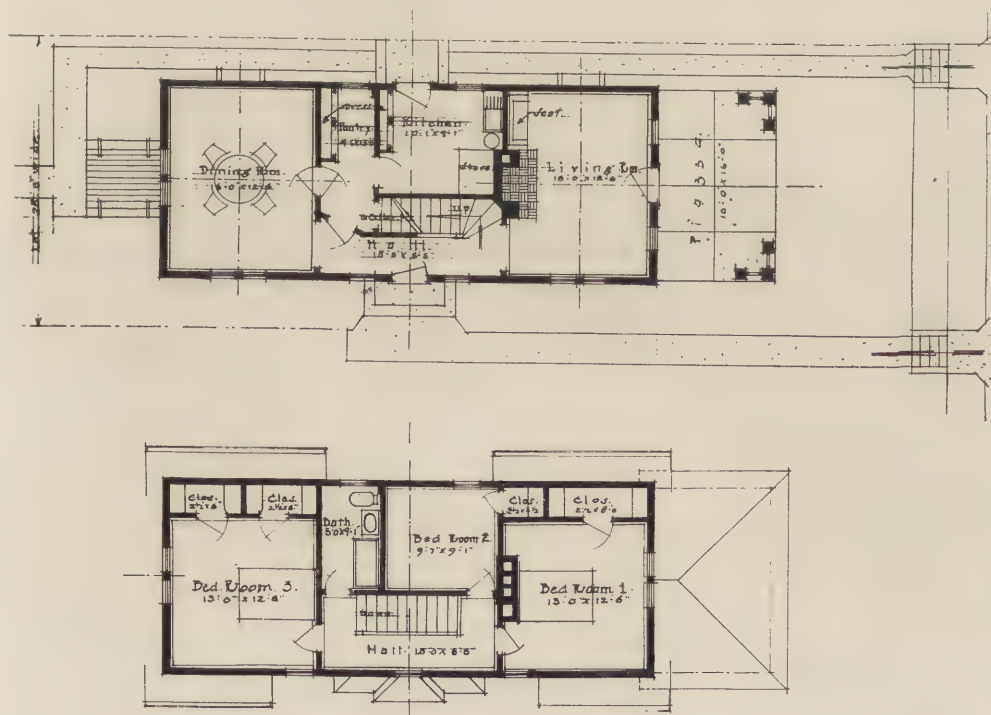
ENTRANCE DETAIL—RESIDENCE OF E. M. STATLER, ESQ.,
BUFFALO, N. Y. ESENWEIN AND JOHNSON, ARCHITECTS.



DETAIL—RESIDENCE OF E. M. STATLER, ESQ.,
BUFFALO, N. Y. ESENWEIN AND JOHNSON, ARCHITECTS.



The construction of this house is stucco on wire lath, the whole being built for \$3,500.



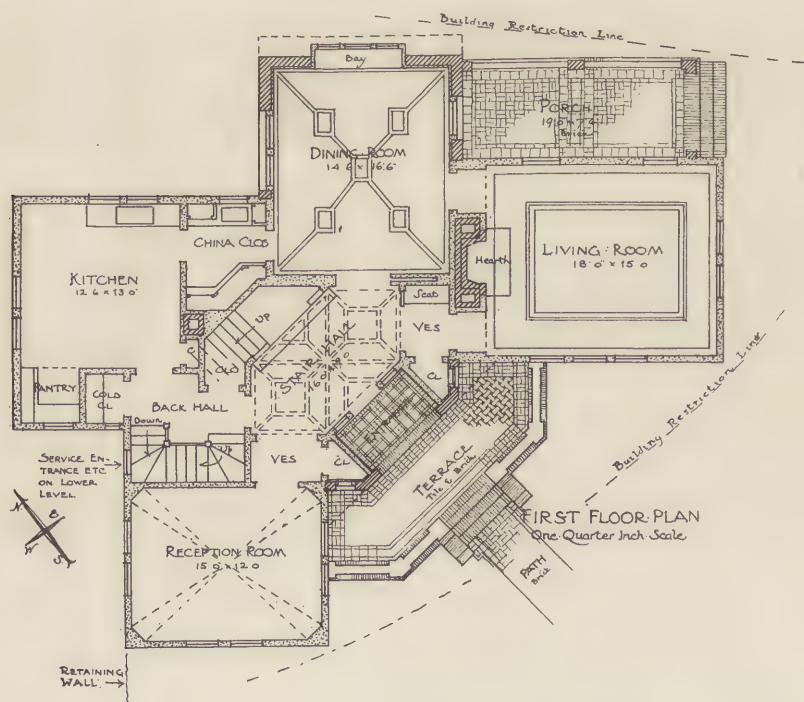
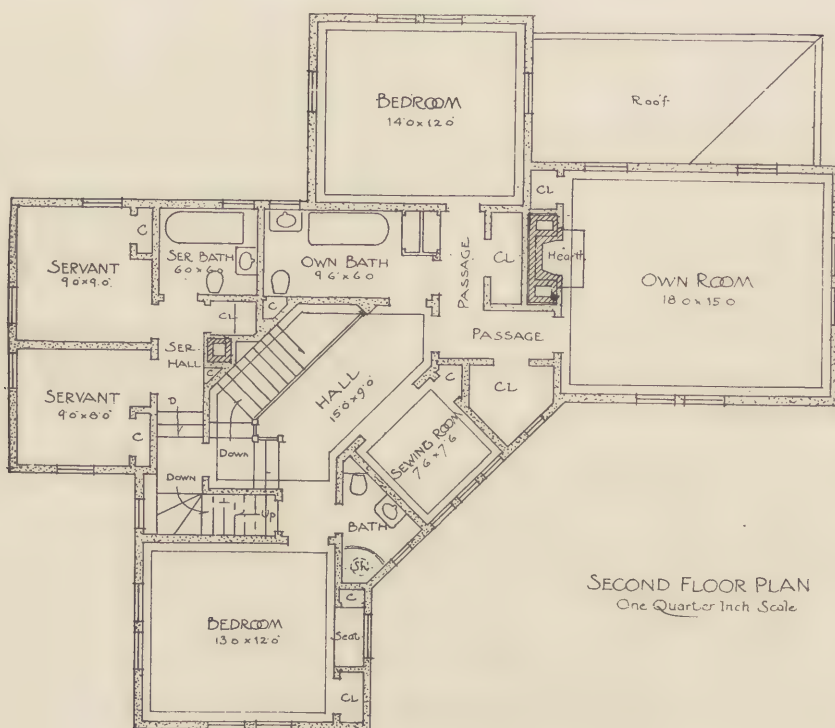
RESIDENCE OF D. ELLSWORTH SMITH, ESQ., TROY, N. Y.
Norman Baird Baker, Architect.



THE TYLER HOUSE, BROOKLINE, MASS.
FRANK CHOUTEAU BROWN, ARCHITECT.



THE TYLER HOUSE, BROOKLINE, MASS.
FRANK CHOUTEAU BROWN, ARCHITECT.



PLANS OF THE TYLER HOUSE, BROOKLINE, MASS.
FRANK CHOUTEAU BROWN, ARCHITECT.



ENTRANCE DETAIL—HOUSE AT KENSINGTON, L. I.
AYMAR EMBURY II, ARCHITECT.



A HOUSE AT WYNDMOOR, PA.
THOMAS. CHURCHMAN AND
MOLITOR, ARCHITECTS.



It is the purpose of this department to keep the readers of the "Architectural Record" in touch with current publications dealing with architecture and the allied arts, describing not only literary, but practical values.

Colonial Architecture. Part I. Fifty Salem Doorways, By Frank Cousins, with an Introduction by Glenn Brown.

Perhaps the architects of this country will never cease to turn back for inspiration (and with a certain amount of reverence and sincerity) to the work of our early Colonial builders. Certainly it is to be hoped that this may be so, for not only is this type of architecture among the very few which we can legitimately call our own, but it is a type of remarkable intrinsic merit.

Among the most significant contributions to contemporary American architecture are those early buildings which were the result of an unsophisticated and conscientious study of pure precedent, and it is for this reason that a perennial interest may be said to exist among architects in all publications that place such buildings on record on the office shelves.

Mr. Ware's compilation of the "Georgian Period" was one of the most notable contributions toward the recording of photographs and measured drawings of fast-vanishing early American architecture, and it was followed by several other works of no less value. The most recent addition to the working library of the architect who interests himself in pure styles is the first portfolio of a series of large plate reproductions of

Colonial architecture, from photographs made and collected by Mr. Frank Cousins.

The fact that there are no measured drawings of the examples illustrated is offset as far as may be by the clearness of the photographs and the large scale at which they are reproduced (7" \times 10").

The introductory letterpress (which we could have wished were longer) is from the pen of Mr. Glenn Brown, the secretary of the American Institute of Architects, and conveys, in spite of its brevity, much interesting information regarding Salem and its architecture.

"The best work in Salem, Massachusetts," writes Mr. Brown, "covers three periods, from 1745 to 1785, clearly showing the influence of the publication of Batty Langley in 1740, a work extensively used in this country. The title of this work explains the character of its information, 'Country Builders' and 'Workmen's Treasury of Design,' or the 'Art of Drawing and Working the Ornamental Parts of Architecture.'" Today it cannot be said that the "Ornamental Parts of Architecture" are not "worked"—they seem in far greater danger of being over-worked. "In the period from 1785 to 1810 the character of the work reflects the influence of James and Robert Adam, whose books on interior decoration were published in 1783 and 1786. After 1800 we see the effect of Revett and Stuart's publications, which were issued in 1788 and 1794-1816, as in this period Greek in-



From "Fifty Salem Doorways."
THE PORCH OF 27 CHESTNUT ST.,
SALEM, MASS.

fluence is clearly reflected. While our early builders and architects made free use of these good publications, they were not simply copyists. They showed their individuality in design and their good taste in adaptation."

As those builders of 1745 to 1810 turned to their "Treasury of Design," so must we, to emulate their saliently sincere and lastingly beautiful achievements, turn for our inspiration to the monuments which they have left behind them. Everywhere in this country where examples of good Colonial work remain these are fast disappearing before the unexpected agency of fire or the no less obliterative devastation of "civic improvement." Perhaps in Salem and in Germantown, and possibly elsewhere a local veneration and appreciation will save the old houses.

Assuredly such records as Mr. Cousins' "Fifty Salem Doorways" are permanently valuable documents. Architecturally they preserve the form and historically, in the careful notes accom-

panying each plate, they preserve the history of each one of half a hundred examples of the best type of American architecture.

Early Christian and Byzantine Architecture. By E. A. Browne.

A good many years have passed since adapted Byzantine, under the powerful hand of Richardson, was a paramount style in this country, yet even recently there have been built several small churches which show that early Christian architecture has peculiar suitabilities for certain requirements.

If it is not the happiest treatment for public buildings or for domestic architecture (despite the remarkable legacies of Richardson) certainly the chapel at Columbia University, by Howells and Stokes, the little church under the shadow of the Metropolitan tower, by McKim, Mead and White, and St. Joseph's, at Babylon, L. I., by Riley and Steinbach, form conclusive evidence of the pleasing adaptability of Byzantine architecture for buildings of this type. And in the Judson Memorial, on the south of Washington Square in New York (an early McKim, Mead and White church) there is testimony in favor of the Romanesque.

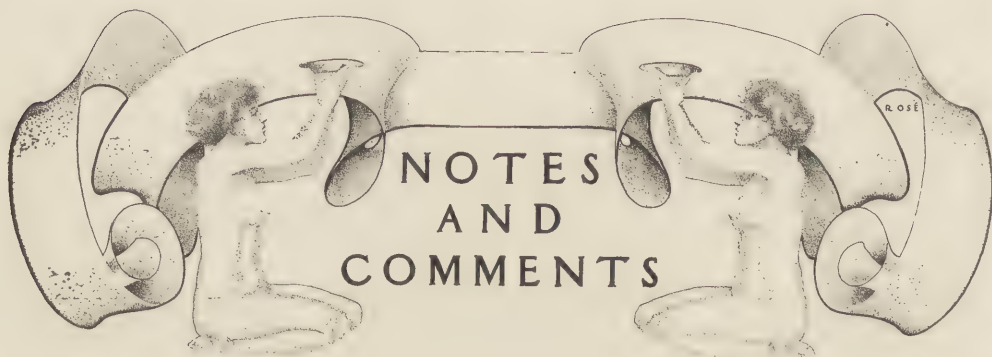
Here is a short, carefully written discussion of early Christian and Byzantine architecture which, despite little working information may be had from its illustrations, is yet immensely valuable if only as a careful discussion of the relation and inter-relation of Romanesque to Byzantine architecture.

There is certainly more in the book of use in the study than in the draughting room—it is the gentle and interestingly handled approach to a rather involved subject—it does not pretend to be scholarly, and if it is not exhaustive it is, on the other hand, by no means exhausting. The inception, development, architects and buildings of the style Byzantine are clearly discussed in one hundred and thirty-six pages and fifty illustrations, the latter making up, to some extent, for their lack of detail by their strong possibilities of suggestion.



From "Fifty Salem Doorways."

THE PORCH OF THE HENRY PICKERING HOUSE,
21 CHESTNUT ST., SALEM, MASS.



**At the
Institute
Convention.**

The following comprises a sequence of pertinent extracts from the opening speech of Mr. Walter Cook, of New York, at the 46th annual convention of the American Institute of Architects, Washington, D. C., December, 1912:

"The one thing that stands out in the history of the Institute is the constantly increasing interest of our members in its aims and its aspirations, and the constantly increasing unity in their views as to the best means of attaining these. Our one purpose is the encouragement of the best architecture, in every sense of the word; any advantage to the architects themselves—the improvement of their position in the community or of their material interests—follows as a matter of course; but this is not first in our minds. During the year which is nearly at an end a great deal has been accomplished especially in furthering that education of the public toward a correct understanding of what we seek, which is our first and most pressing necessity.

"If the results of these efforts of ours have come but slowly it is perhaps in part our own fault; for astonishing as it may seem, this public, or the best part of it, has listened to us with interest and good will, and in the great majority of instances has recognized the force of our arguments and the truth of what we have advanced. One example of this, and the most important one perhaps, has been the conduct of the competition for the Capitol of the State of Missouri. Beginning as it did with certain conditions laid aside, which were, as we believe, not for the best interest of the state, the Capitol Commission invited a delegation of the Institute, which had called its at-

tention to these conditions, to visit them and confer with them. This conference was a most satisfactory one, and the result was a competition for this great public building conducted in a manner which was eminently judicious, and which bids fair to add one more to our great and beautiful monuments. And recently the Capitol Board has sent its thanks to the Committee of the Institute whose members advised with them. Certainly all our thanks are due to these enlightened gentlemen for the aid they have given to good art, and for the example they furnished to our whole country. And this is only one—the most prominent it is true—of many of such incidents in affairs great and small, which go to prove that after all our countrymen are broadminded and patriotic and only need to have the truth shown them.

"Unfortunately we have to record one experience of a quite different nature. The Tarsney Act, authorizing the designing of our government buildings by architects, has been repealed; and for the moment these great monuments of our country have been handed over to an official factory, to be turned out by the yard; for whatever the talent and the ability of the Supervising Architect of the Treasury, this is what must of necessity result. Nothing of this sort has ever happened in any civilized country, so far as I know, unless our own unhappy experiment of years ago may be considered an exception. It is quite unnecessary for me to speak of the so-called arguments which were employed in urging this repeal—the plea of an economy which has, we believe, been shown not to exist, and certain others which displayed such an almost ludicrous ignorance of the whole subject, that we can but shrug our shoulders and say with Figaro, that we hasten to laugh, lest we be obliged to weep. But if

any of our special guests of this year—sculptors, painters or authors—are unacquainted with them, we hope they will without delay read certain of the official documents which have been published, for they will find them most delectable. And they will certainly appreciate the logical sequence of this repeal—the establishment shortly of a special department of the government for the manufacture of all sculpture and decorative paintings, followed rapidly by still another, whose duty shall be to turn out all odes, sonnets or lyric verse which may be needed to celebrate the achievements of our enlightened Republic.

"However, we are hopeful and optimistic; we have faith in the sober second thoughts of our representatives in Congress; and we look forward with confidence to legislation in the near future which will not simply reenact the Tarsney Act—for it had its imperfections—but will give us something even better for our country and its art.

"All of our experiences, be they victories or defeats, only serve to accentuate the need of which I have already spoken—the need to do all we can to enlighten our fellow citizens in those matters which are our special province; to awaken their interest and better their understanding of what we do and how we do it.

"As for the architectural work of our country and our time, to which we are devoting our lives, it moves on apace. Every day sees new and important buildings, and we admire and blame and criticize as the mood is upon us. It is very hard for us, who are so much in the thick of the battle, to see clearly and to give any calm-minded judgment upon it as a whole. But within a few months I have had the good fortune to talk with two fellow-architects of acknowledged eminence from across the water. Their verdict was one of enthusiastic praise for our achievements; and they made comparisons between what we are doing here and what is done in other countries, which were most flattering for us. So I think we are justified in some self-congratulation."

Report of Committee on President's Address made to and approved by the 46th Annual Convention.

The President in his address makes the comment that the significant fact in the history of the Institute is the constantly increasing interest of its members in its aims and aspirations, and the constantly increasing unity in their views as to the best means of attaining these. The status of the architectural profession is still ill-defined in many

parts of the United States. The issues with which the architects have had to reckon are complex and are rooted in stubborn conditions. Environments most various have wrought upon the ideas and the ideals of the architects themselves. It would be difficult to exaggerate the untoward character of some of these environments. Some of us—perhaps most of us—have been so closely involved in puzzling and trying situations that we have failed to see the entire field in its proper perspective and some of us have been prone to take a somewhat pessimistic view of the immediate outlook for the profession. It is therefore a cause for congratulation to the Institute that its President, a man of wide experience, high ideals, and singularly temperate mind—has been enabled, amid all the perplexing questions with which the Board has had to deal, so to preserve his sense of proportion and his wise optimism that he can deliberately affirm the constantly increasing interest of the members in the aims and aspirations of the Institute and, through all the divergencies of opinions, can note a constantly increasing unity in the views of the members as to the best means of carrying out the high purpose of the Institute.

Your committee believes that the President stands on firm ground when he asserts that, during the past year, marked progress has been made in educating the public toward a correct understanding of what we seek. But in this connection your committee cannot forbear to lay still further emphasis on the fundamental truth—that a genuine solidarity of opinion in the profession itself as to professional ideals is an indispensable pre-requisite to a proper recognition of status in the eyes of the public. The architects must themselves analyze and decide questions of ethics as between one another and as between themselves and the public with dispassionate forethought and with an eye single to the highest interests of the profession and of the entire community. The first step toward the education of the community by the architects must be the education of the architects themselves.

The poise of mind of your President is equally in evidence in his reference to the repeal of the Tarsney Act, which he treats as a disagreeable episode to be viewed philosophically rather than as a tragic finality calling for fierce invective. Viewed largely, man and his governments and institutions are but a passing show; and, if the tides of a democracy are sometimes destructive, we do well to remind ourselves

that only in a society capable of change is there the possibility of progress. A generation of new law-makers—like a generation of new children—has newly to be educated. The Institute's work is cut out for it. It hardly requires that we recommend a resolution instructing the President and the Board of Directors to take action in the premises. We venture to usurp the authority of this convention and to advise the President and the Board of Directors that it is the sense of the Institute that the President and the Board of Directors should, at the earliest time, take steps to prepare or to cause to be prepared and, in due time, to submit to the proper Congressional Committees a bill for an act that shall not only replace the Tarsney Act but shall,—as your President has said,—“give us something even better for our country and its art.”

**“Credit to Whom
Credit Is
Due.”**

In addition to the “Canons of Ethics” issued by the American Institute of Architects, it is valuable to publish an additional motion put forward by the St. Louis Chapter of the Institute regarding published statement of authorship due to the profession in connection with reproductions of work.

In the Architectural Record of April, 1912, there was published an illustration of the reredos of Christ Church Cathedral in St. Louis, of which the architects were Tully and Clark, and, their names being omitted, and that of a Mr. Caldwell, as designer, being printed, the St. Louis Chapter of the American Institute of Architects appointed a committee of three to inquire into the matter.

The following extracts from the report are printed herewith, as given:

“After a series of conferences with Messrs. Tully, Study and Caldwell, your committee reports as follows: Messrs. Tully and Clark were the architects employed by the Church Committee on Building to execute the work, Mr. Caldwell was employed in the capacity of a draftsman to carry out the design for the tower, already formulated by Messrs. Tully and Clark several years before. That Mr. Caldwell should assume under these conditions that he was responsible for the design of the tower is to be regretted. That Mr. Study should assume that Mr. Caldwell was the designer without a more careful investigation of facts as they existed, of

verification of information he received from various sources is to be deplored, and that any member of our Chapter should write an article on the work of a fellow architect and purposely omit his name (as architect) your committee feels is a gross breach of etiquette, and shows a most unfraternal spirit. That Mr. Caldwell's name was mentioned as designer of the reredos is acknowledged to be a publisher's error. * * * Your committee recommends the adoption of the following resolution: Be it resolved: It shall be considered unethical on the part of any member of this Chapter (who may be a contributor to any magazine, or called upon to prepare a paper for publication) who may fail either intentionally or unintentionally to give credit therein to the architect commissioned to execute the project or building described in such an article; and such member shall lay himself liable to censure from this Chapter.”

This would seem an excellent motion, and it is to be hoped that its local adoption by the St. Louis Chapter may result in its wider adoption by the Institute at large, in view of the fact that editors and publishers must necessarily rely very largely upon the accuracy and conscientiousness of their contributors. Furthermore, any motion which might tend toward the uniformity and standardization of credits printed in periodicals and elsewhere must certainly be welcomed by editors and publishers, who, as a class, perhaps, can be said to deplore mistakes and inaccuracies even more than do the victims thereof.

**Control of
Parkway
Buildings.**

To persons not living in Philadelphia, perhaps the most striking feature of the recently issued 1912 report of the City Parks Association is a paragraph which describes the development which is expected along the new parkway stretching from the City Hall to Fairmount Park. Stating that the plans for the central building of the Free Library, for which about \$800,000 is available, are well under way; and that the plans for the Art Museum are being prepared, the note continues: “Locations for the Central Manual Training School, the American Philosophical Society, and the Philadelphia College of Pharmacy have been set aside or condemned. Other institutions, like the Franklin Institute, the Penn-



from The Architectural Record, April, 1912.

THE REREDOS IN CHRIST CHURCH, CATHEDRAL,
ST. LOUIS, MO. TULLY AND CLARK, ARCHITECTS.

sylvania Academy of the Fine Arts, and the Pennsylvania Museum and School of Industrial Art, will probably erect buildings along the Parkway at one point or another. Public buildings, like Law Courts, have been proposed." The very obvious comment is added that in order to produce a harmonious and beautiful whole there is necessary some control of the general architectural appearance of all the parkway buildings. The Report suggests that this control be placed in the hands of the Art Jury. This Jury corresponds to the bodies known in most other cities as Municipal Art Commissions.

This whole report of the City Parks Association is of much interest and value, its eighty or more pages offering an inspiring view of a great city's opportunity and obligation for development. "The resources of a city," it observes, "fortunately increases with its needs * * * Any plan to be carried out in twenty-five years, for which the present capacity of the city is sufficient, is to be judged, because of that fact alone, as probably inadequate." Interesting also is the following paragraph: "The head of a great banking corporation presented a shrewd attraction to depositors, when at the corner of Broad and Chestnut streets, on the costliest land in the city, he erected, not an office skyscraper, but a noble and beautiful building of classic architecture. Has that investment paid? Ask not that question, but rather how many times has it overpaid. Of all the advertisements that have ever been displayed in Philadelphia, none more effective exists than that supremely beautiful building."

The American Institute Elections.

At the 46th annual convention American Institute of Architects, December, 1912, the election of officers resulted as follows: President, Walter Cook, New York (re-elected); first vice-president, R. Clipston Sturgis, Boston, Mass. (re-elected); second vice-president, Frank C. Baldwin, Fredericksburg, Va. (re-elected); secretary and treasurer, Glenn Brown, Washington, D. C. (re-elected). Directors for three years: Burt L. Fenner, New York (elected); C. Grant LaFarge, New York (elected); H. Van Buren Magonigle, New York (elected). Auditor, Robert Stead, Washington, D. C., and the election of Fellows resulted as follows: Wm. D. Austin, Boston, Mass.; W.

Dominick Bones, Cleveland, Ohio; Henry Clay Carrel, New York; Walter B. Chambers, New York; Clinton Day, San Francisco, Cal.; Wm. Adams Delano, New York; L. C. Holden, New York; Walter G. Peter, Washington, D. C.; Arthur Wallace Rice, Boston, Mass.; Charles A. Rich, New York; Horace Wells Sellers, Philadelphia, Pa.; Frank E. Wallis, New York; Arthur F. Woltersdorf, Chicago, Ill.

The honor of "Fellow" of the American Institute of Architects, to quote from the by-laws, "is conferred upon a member who is a citizen of the United States, who, in the opinion of an authorized Jury of Fellows, shall have notably contributed to the advancement of the profession in design, construction, literature or education."

Fire Exits.

Some interesting, if disquieting, testimony on the subject of fire escapes has been given this Fall to the New York State Factory Investigating Commission, in an official statement by its fire expert, H. F. J. Porter. Mr. Porter characterized the usual fire escape as a fire trap. The contracted space in which many fire escapes must be installed, the tendency to cut them off some distance from the ground in order that burglars may not use them for entrance to the building, the frequent difficulty of putting the lower story of the fire escape into position, and its overcrowding or breaking, conspire, in his judgment, to make this a most unreliable avenue of escape. Neither had he much greater regard for the usual inside stairway. Such a stairway is usually the same size, or nearly the same size, at the lower floors as at the upper, although each floor is connected with it, and is supposed to empty its human contents upon it. Consequently jams occur. "The reason for this jam is that the irregularly shaped bodies of the people interlock and the friction of their clothing aids the wedging action so that there is an actual arch formed across the stairs, and the greater the pressure behind it the tighter it holds." Mr. Porter's criticism, however, was constructive. He stated that he put most faith in the fire wall, extending from cellar to roof, with fire-proof doors on each floor. The principle involved, he pointed out, was the same as that of the collision bulkhead of the ocean steamer. It develops a "bisectional building," offering a horizontal instead of a ver-

tical escape, and making a fire drill unnecessary. Of course, as he remarked, there is nothing new about this device. It already exists in buildings everywhere, and its value as a fire stop to protect property has long been known. "Its availability as a fire escape has not, however, been recognized, and it is this feature which I have advanced as affording the only means of safe escape from fire to the occupants of crowded floors. This is a new feature in architecture, as applicable to department stores, schools, theatres and residences as to factories."

A Housing Competition.

The Illinois Chapter of the A. I. A. has drawn up, at the request of the City Club of Chicago, a program for a competition for plans for laying out a typical residence area on the outskirts of the city of Chicago. Three prizes, for which the money is given by Alfred L. Baker, president of the City Club, will be awarded. These amount to \$300, \$200 and \$100, and in addition honorable mentions will be given. The drawings are to be delivered at the office of the City Club of Chicago by noon of March 3rd, and they will be passed upon by a jury of five, chosen by a joint committee of the Chicago City Club and of the Illinois Chapter of the A. I. A. The competition is held in connection with the Housing Exhibition which is to open under the auspices of the City Club on March 7th. The "Program" recites that while the well known Chicago Plan deals especially with the broad structural features of the city framework and contemplates a long period of time for its execution, "the unoccupied land on the outskirts of the city is being rapidly built up with homes without that intelligent direction which is necessary for the good of the city and its population. Recreation centers and parks are not being located until population has made them absolutely necessary, and then at large cost." It is hoped that this competition will not only extend information and awaken increased interest as to the wise sub-division of residence tracts, but that some of the plans may be actually adopted.

The assumed site is a quarter-section of land located on the level prairie about eight miles northwest or southwest from the business center of Chicago. The tract is without trees or buildings. The prop-

erty surrounding it is assumed to be subdivided in the prevailing gridiron fashion. Street car lines on two sides of the street are assumed to furnish transportation to the business section in about forty-five minutes, and some large industrial plants are located half a mile or so from the site. The plans are to provide for a population of not more than 1,280 families for the quarter-section. Each competitor is to submit two drawings: a plan drawn to a scale of 80 ft. to the inch; and a bird's-eye perspective of the area, or of some portion of it, in its proposed developed condition. Both drawings are to be rendered in pen and ink with or without monotone wash. In addition, each competitor is to submit a typewritten statement fully explaining his plans. The competition is open to anyone who cares to enter it. Full particulars may be secured from George E. Hooker, civic secretary, The City Club, Chicago.

Praise from Achille Duchene.

Achille Duchene, who has had several interesting commissions in this country, has lately been here again to look over the possibilities of a 1,000-acre tract in California, upon which he and Willis Polk, of San Francisco, are collaborating for the creation of a residence splendidly set for Mrs. Frank Carolan of San Francisco. On the eve of his return to Paris, a few weeks ago, M. Duchene was interviewed by several of the New York newspapers. He praised American architecture, or at least the best of it, for its good lines and its appreciation of dimension, scale and harmony. In these respects, indeed, he thought New York led the country so far as he had observed. Speaking of the Grand Central Terminal, one of the newspapers quotes him as saying: "It is a tremendous thing for your art when you accomplish such great efforts as I saw in that building with nothing but simple lines." He praised extravagantly the view of New York as one comes up the Bay. The foreigner approaching New York, he said, "experiences a sensation more wonderful, more peculiar, more impressive to an inexpressible degree than he gains entering any other port in the world. Naples, Salonica, the Golden Gate of your California, are truly wonderful. There are many ports where the mountains, the valleys, the sky and the sea all appeal with their beauty. But it is the beauty created by God. Coming into New York—ah, then is New York indeed beau-

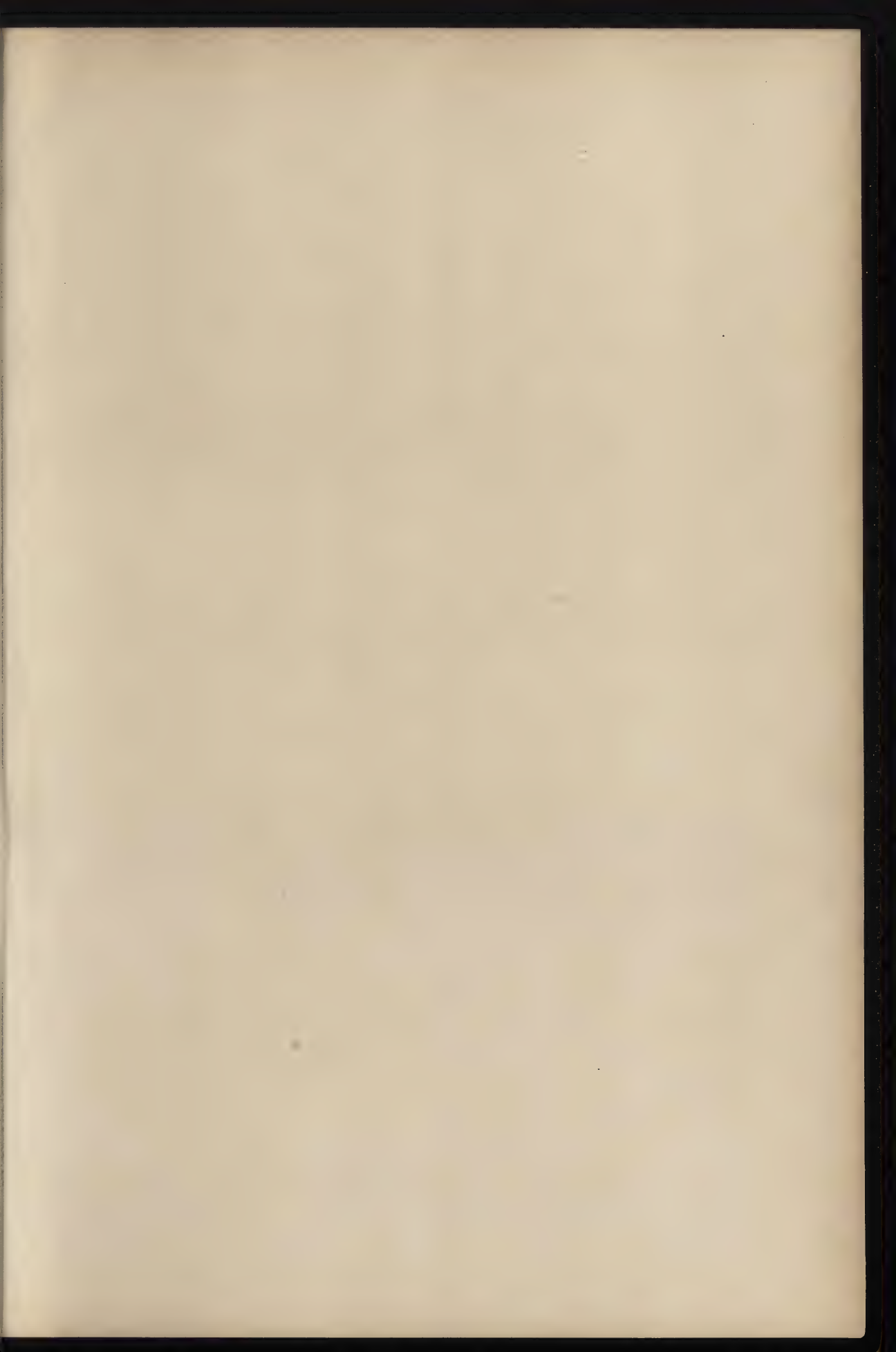
tiful. It is so vast, so Herculean. Whatever of line is in error is lost. One is aware only of its vastness, of its entirety and its grandeur. And this is a grandeur built by men. I cannot hope to describe the sensation when one approaches New York from the sea for the first time. What must be the impression of the immigrant as he lands in New York! How must he feel as he stands gazing down on your vast avenues teeming with the life of a nation greater than he has ever known! He does not know such streets where he came from. And as he gazes aloft at the lighted windows of your vast buildings wherein men are working like bees in a hive, each window representing a unit of energy which might occupy a whole building in his native land, then must he wonder if he can ever become a part of this, a success in its midst. London in no manner represents this aspect." He thought it strange that in the smaller cities front gardens were unenclosed, and he thought the costly residences on Fifth avenue, New York, failed to typify the real architectural progress of the country. He found that best represented in the great railway stations, the high commercial buildings and the model industrial plants. He had a good word, also, to say for the common effort among American architects "to work for the good of their community as well as for their clients." This he said had "tremendously impressed" him.

National Housing Conference.

From the strictly professional point of view of the architect, the most interesting feature of the National Housing Conference, held in Philadelphia last month was the vigorous protest against unreasonable building restrictions. This was voiced primarily by Grosvenor Atterbury. In the sessions preceding that in which Mr. Atterbury spoke, enthusiastic social workers and philanthropists had had much to say about the local restrictions that would give our cities model housing. Mr. Atterbury's theme was Garden Cities. Wisely assuming that his hearers were somewhat familiar with the purpose and nature of these communities, and with his own work in the building of Forest Hills Gardens for the Sage Foundation, he launched at once into a discussion of the difficulties which beset a builder of garden cities, or of any type of inexpensive housing, because of building restrictions which are not always consistent or always reasonable. "Why," he said, "should there be one

standard for concrete in New York and an entirely different one in St. Louis?" E. H. Bouton, of Baltimore, who has had much practical building experience, followed Mr. Atterbury with a very earnest appeal to the somewhat shocked social workers, to remember that all the economic waste involved in unreasonable building restrictions came upon the tenant in the imposition of a higher rent. Some attempt was made to answer Mr. Atterbury's criticisms, but throughout the rest of the Conference it was clear that he had made an impression which could not be wholly effaced. The second conclusion of the Conference which was of practical professional interest to architects was a widely felt spirit of protest against the deadly monotony of the Philadelphia rows of little houses—mile upon mile exactly alike—which have so long been held up by many social workers as the best solution of the cheap housing problem yet reached in America.

It was significant that last month's Conference in Philadelphia was only the second National Conference on Housing which has been held in this country, and yet that more than two hundred delegates were registered from outside of Philadelphia. As the local interest was extensive, the auditorium in which the meetings were held was filled at every session. The delegates were taken on two trips of inspection. The morning of the first day was devoted to the worst examples of housing which Philadelphia could show, and the morning of the second day to the best examples. The most valuable paper of the Conference was that by Andrew Wright Crawford, whose subject was, "Property Divisions, Lot Depths and Height Regulations." Taking occasion to point out the connection between housing and city planning, he noted that the former stands for efficiency of the individual and the latter for efficiency of the community. He emphasized the importance in both respects of the factor of transportation. Renewal by the Conference of the familiar attack on the tenement was a foregone conclusion, particularly as the meeting was held in Philadelphia. So also was the statement, which was voiced by Mr. Ihlder, of a belief that on a fair basis of comparison, "the small house furnishes larger and better accommodations per dollar." Of all the sessions, there were few that were so interesting or valuable as one that was not on the program or officially recognized. This was a hastily called meeting, at which plans were studied, criticized and explained by those actually engaged in building. This is a feature which future housing conferences should adopt.





THE NEW YORK CITY POST OFFICE
McKIM, MEAD & WHITE, ARCHITECTS.

American Lithographic Company, N.Y.

THE ARCHITECTURAL RECORD

Volume XXXIII.

MARCH, 1913

Number III.



"THE CRUCIFIXION." PAINTED FOR THE PAULIST FATHERS' CHURCH, BY
WILLIAM LAUREL HARRIS.

A STUDY IN CHURCH DECORATION

THE PAULIST FATHERS CHURCH IN NEW YORK CITY & NOTES ON THE WORK OF W. L. HARRIS

By CHARLES H. DORR

ABOUT A QUARTER of a century ago, a dreamer-idealist, who was guided and inspired by the art of the antique world as exemplified by the great cathedrals of Europe, returned home after an exhaustive study of the basilicas of noted continental cities across the seas, and resolved to introduce into this country an art combining the ideals of the past and the American genius of his period.

Here in America these ideals of art were discussed by a coterie of artists unknown to the world at large in those days, but destined to fame in later years, and thus it happens that the great impulse of New York is reflected in the monumental art of the Church of Saint Paul the Apostle, which was inaugurated by Father Hecker, of Brook Farm

fame, and founder of the Paulist Community, which three years ago celebrated its silver jubilee.

Decorative art of today and old Roman traditions that date back to the twelfth and thirteenth centuries are blended in the remarkable mural paintings and other examples of art which embellish the interior of the Church of the Paulists, New York, and it may be stated authoritatively that no such scheme of church decoration has been inaugurated since the days of Raphael and the Italian Renaissance.

It reads like a romance—the history of the Paulist Community—and within the cloisters, chapels and corridors of this religious edifice dedicated to St. Paul, the Apostle, has been acted an art

history which is decidedly interesting, as it bears the imprint of names high in the annals of American art.

These artists who have contributed to the decorative features of the Paulist Church through their genius mark an epoch in American art, and wield as well a potent influence for the future.

Here are the names of the late John La Farge, colorist, and master of stained glass art; Frederick MacMonnies, the eminent sculptor, who has not only won fame in this country, but is equally renowned in European art centres; Robert Reid, the figure and mural painter, member of the illustrious Society of Ten; the late Stanford White, master-architect; the Marquis Wentworth, Chevalier of the Legion of Honor; Bela Pratt, the American sculptor, of Boston, who designed the figures of Art and Science for the Boston Public Library, and William Laurel Harris, mural painter, who is devoting his life work to the painting of the interior of this church—all are affiliated with the elaborate scheme of decoration introduced into the house of the Paulists.

The artistic features of the church really were initiated by Father Hecker, who surrounded himself with the most eminent painters and sculptors of his time. Among these advisers were Augustus St. Gaudens, the noted sculptor; Stanford White, and John La Farge, who all rendered him valuable aid.

Thus, according to tradition, the Order of the Paulist Community became imbued with an artistic trend, which is being fulfilled in the present generation.

While travelling through Europe Father Isaac Thomas Hecker became impressed with the grandeur and architectural beauty of the famous cathedrals in foreign lands. Of an artistic nature, he was particularly impressed with the beauty of the Romanesque churches in Northern Spain and Southern France.

Upon his return from abroad Father Hecker was aided in his ambitions for the artistic development of the Paulist Church by Father Deshon, a former military engineer at West Point.

Father Deshon was a room-mate of General Ulysses S. Grant, at West Point, and succeeded Architect O'Rourke as constructor and architect of the Church of St. Paul, the Apostle.

The original plans submitted for the building of the church provided for a Gothic type of structure resembling, in some respects Saint Patrick's Cathedral, which is said to possess the disadvantage in planning, of seating people behind columns and piers, thus obstructing their view.

When these plans were shown to Father Hecker he saw at once the futility of the scheme, and insisted on the church being made considerably wider. The architects of the time said it could not be accomplished and Father Deshon said it could.

During the construction of the edifice conferences frequently took place between Father Hecker, St. Gaudens, Stanford White and John La Farge.

One day while walking through the church Stanford White remarked, "You have widened the nave, why not widen the intervals in the side aisles?" Father Deshon was a member of the party on this occasion, and, in accordance with Mr. White's suggestion, he gave orders to set the arches, and as a result the present massive type of construction is apparent in the Paulist Church.

Through these plans the church was gradually converted from the English Gothic style in its construction to the Roman basilica type, which Father Hecker always advanced as a theory, and now realized through a casual suggestion by Stanford White.

Stanford White was chosen later to design the imposing high altar, which dominates the whole interior of the church, and which is worthy of comparison with the Santa Maria Maggiore and St. Paul Beyond the Walls in Rome.

There is an interesting story told in connection with the building of this high altar. The material intended for the altar was cut out of African marble, and shipped by a sailing vessel to New York. A storm wrecked the vessel bearing its cargo of marble across the seas, and the



*The altar by the late Stanford White.
 The window to the right by the late John La Farge.
 The altar lamp by Philippe Martigny.
 Sculpture of the high altar by Frederick MacMonnies.*

THE HIGH ALTAR, CHURCH OF THE
 PAULIST FATHERS, NEW YORK CITY.

ship and its entire consignment went to the depths of the ocean.

After considerable delay a new set of columns was ordered, and the marble eventually arrived here from Africa. These massive columns of colored porphyry marble are combined in the high altar with other materials from the old monastery of Sienna, Algerian pieces and onyx, alabaster and gold.

Stanford White also executed the altars to the right and left of the high altar dedicated to St. Joseph and the Blessed Virgin. Suspended over the altar is a ponderous altar lamp designed by Philip Martigny, the American sculptor. Surmounting the high altar are three bronze statues, by Frederick MacMonnies. They are three figures of adoring angels, and represent the first commission received by this now famous American sculptor. The three angels are revealed kneeling with musical instruments at the top of the altar, and thus was first realized Father Hecker's dream toward fulfilling the scheme of *The Liturgy of Angels*, planned to surround the high altar.

Within the Paulist Monastery Father Hecker and a little coterie of artists often met and discussed the plans of church decoration, destined to play an important role in the development of American art.

It was here that the late John La Farge made his first essay at church decoration. This phase of art was comparatively unknown in those days among the American artists. Through preliminary sketches and mural studies, La Farge became known as a mural painter, and thus blazed the way for his famous decorative paintings in Trinity Church, with its picturesque spires of architectural beauty, one of the landmarks of Copley Square, Boston. In this early period La Farge began his work of designing a series of beautiful stained glass windows for the Paulist Church, which remain today a valued part of the scheme of decoration inaugurated by the Paulist band.

Altogether there are about twenty-two of these Romanesque stained glass windows of various colors by La Farge,

purples predominating with blue, and with amber colored backgrounds, such as only that master-colorist could evolve.

Another American artist, who contributed to the scheme of decoration introduced into the Paulist Church by John La Farge and Stanford White, is Robert Reid, whose name is usually attached to figure painting, and invariably at the yearly display of the "Society of Ten."

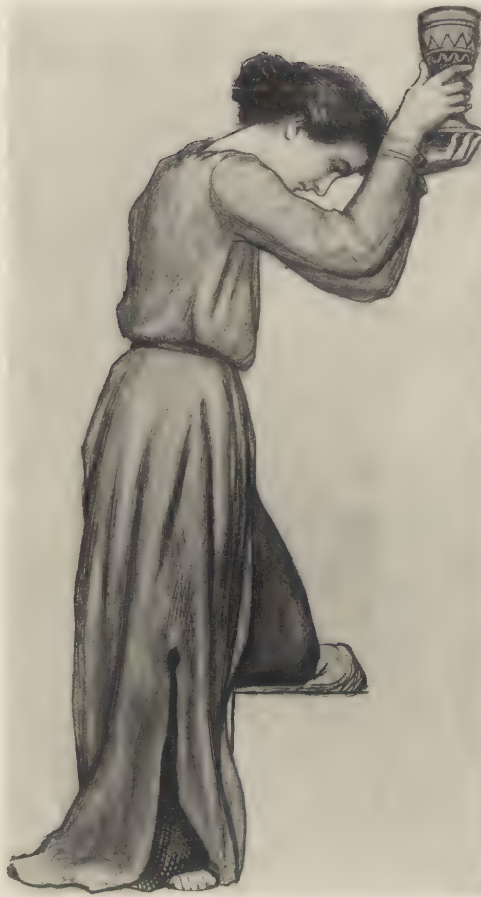
Mr. Reid was commissioned to paint the mural decorations for the chapel dedicated to St. Paul, the altar piece representing St. Paul's martyrdom. In the foreground stands the aged Saint's executioner with drawn sword, while in the middle distance are the Roman soldiers and frightened groups of spectators. The Roman country is depicted in the composition of the background. It is said that Mr. Reid made the original sketches, which he eventually utilized for this decoration of this subject, while standing on the outskirts of the ancient city.

Following Mr. Reid, the Marquis Wentworth joined the coterie of artists, who were contributing their talents to the decoration of the church. The Marquis Wentworth, who was a pupil of the eminent painter, Bonnat, embellished a marble altar dedicated to St. Catharine, with a painting of the Crucifixion, while on either side are panels of imitation mosaic.

A Boston sculptor was also chosen to continue the work of decorative art inaugurated now so auspiciously within the Paulist Church. Bela Pratt, who has been honored with important commissions at home and throughout New England, is here represented by a graceful example of his art, *The Virgin of Annunciation* in the Annunciation Chapel. This figure of the Virgin in marble stands on an altar dedicated to the Annunciation. It is symbolical of a lily blossoming, the arrangement suggesting a lily bud about to bloom. After the stimulating influence of the first group of artists came a period of depression in the art development of the community. For about three years art languished within the Church of St.



DETAIL OF THE HIGH ALTAR, CHURCH OF THE PAULIST FATHERS IN NEW YORK CITY. THE ALTAR DESIGNED BY THE LATE STANFORD WHITE.



STUDY FOR A DECORATIVE PAINTING
IN THE CHURCH OF THE PAULIST
FATHERS.

By William Laurel Harris.

Paul the Apostle, when the introduction of copies of European altar pieces and paintings was not considered auspicious for the cause of American art, and certainly was not in accord with the general theories proposed by the Paulists.

These copies included paintings of Saint Anne, Justinus, and portions of the decorative work in the Annunciation Chapel, which comprises reproductions of German and Italian pictures.

American artists began to comment at this invasion, and finally revolted against the introduction of European copies.

About this time William Laurel Harris, a pupil of Gerome, and a diligent

student at Julian's famous Academy in Paris, returned from Europe and received a commission to contribute to the decorative work then in progress at the Congressional Library, at Washington. He afterwards exhibited several examples of his mural paintings at the Architectural League's annual display, in New York, where these pictures attracted the attention of the Paulist Community.

Following a conference with Father Deshon Mr. Harris was commissioned to continue the mural decorations for the Church of St. Paul the Apostle, and he based his art upon early Roman traditions, thus fulfilling the ideas of Father Hecker, founder of the Paulist Band.

To Mr. Harris, therefore, must be given the credit for introducing a general theological scheme of mural decoration, suggested somewhat by the famous church of St. Francis at Assisi and the Duomo at Monreale, a church that preserves to us the best traditions of Christian art of the twelfth and thirteenth centuries.

This scheme marked an epoch in the history of the Paulist Church, and the ornamental motifs introduced by the artist followed the old Roman method of merging pictures and ornaments into one general scheme of decoration, thereby greatly enhancing the effect.

An illustration of this type of art is revealed in "The Crucifixion," which is considered the most important of all of Mr. Harris's mural paintings. It is placed at one end of the church where from the floor to the ceiling one scheme of decoration is evolved.

Here are several of John La Farge's beautiful stained glass windows, which gave the color scheme for the massive decoration, including mural painting, panels and carved and gilded ornaments, all in harmony with the original colors.

"The Crucifixion," one of the largest religious paintings ever executed in this country, was unveiled on Easter Sunday, three years ago, the event commemorating the fiftieth anniversary of the Paulist Church. To gather local color for this painting, Mr. Harris jour-



THE CHAPEL OF ST. PATRICK,
CHURCH OF THE PAULIST
FATHERS, NEW YORK CITY.
DECORATIVE PAINTINGS BY
WILLIAM LAUREL HARRIS.



A DECORATIVE PAINTING.
 "ST. BRIDGET," IN THE
 CHAPEL OF ST. PATRICK.
 THE CHURCH OF THE PAULIST
 FATHERS, NEW YORK CITY.
 BY WILLIAM LAUREL HARRIS.

neyed to Palestine where he arrived one spring day in Holy Week several years ago.

He reached Jerusalem at sunset when the purple glow enveloping the foothills in and about this ancient city gave him the inspiration for this impressive painting. The central motif of the decoration contrasts the weeping group at the foot of the cross and all the power and magnificence of the Roman soldiery in Palestine.

The figure of our Lord is revealed at the foot of the cross in the centre of the composition, and in the group may be noted the figures of Mary Magdalene, Mary Salome and Mary Cleophas, overcome with grief and despair.

On the left stands St. John the Evangelist and near by is portrayed the figure of the Blessed Virgin, who is kneeling with clasped hands.

Among other figures in the composition is Longinus, the Centurion, who is observed on horseback; the soldiers marching towards the distant fortifications, the departing throngs of Scribes, Pharisees and soldiers armed with long spears, while flanked on either side are the forms of the two thieves tied to their crosses. The towers of Herod's castles loom high in the distance over the heights of Mount Zion.

A notable addition to this scheme of decoration, which embellishes the east wall of the church interior, are seven panels recently completed, which embody several ancient symbols of religious thought. One of these panels represents the figure of Christ after the descent from the cross, with seven branch candlesticks to the right and left of the composition, in accordance with a custom prevailing in ancient churches. Passion flowers are introduced as a decorative detail in the ornamentation, while a light gleaming from above reveals the Alpha and Omega and the symbol of the Trinity.

Two smaller designs are shown on either side of the chief panel representing the Phoenix, the traditional bird that rose from its ashes, and a symbol used by the early Christians in the Catacombs as an emblem of immortality.

Vari-colors are used in the decoration of panels including silver and purple, ruby, green and gold, while semi-precious stones are introduced with mystical effect.

Another ancient symbol is portrayed in the figures of twelve white lambs standing in a garden of flowers, representing the twelve apostles, an arrangement which is frequently found in many of the Roman basilicas. Similar examples of this symbolic composition may be found in the Church of Saint Cecelia; Saint Apollinaire, of the sixth century, in Classe at Ravenna; and Saint Maria, twelfth century, and the thirteenth century decorations in the Church of Saint Clemente, in Rome.

Forming part of the "Liturgy of Angels" that will some day fill all the windows and wall space about the high altar in the Paulist Church are two notable mural decorations, which must be included in this narrative of the art development in a community, which has proved epoch making in the cause of American art.

Previous to the seventeenth century no large scheme of church decoration was considered complete without the choir of angels in the sanctuary. In the early days the Regents of the Sky, the Angel of the Moon and the Angel of the Sun frequently appeared in medieval church decorations.

A revival of this form of art was undertaken by John La Farge, who painted for the sanctuary of the church of St. Paul, "The Angel of the Moon," a serene and majestic conception in which the dull blues, the transparent purples and luminous amber suggest the tranquil spirit of night.

Not long ago a companion picture to this Angel of the Night, was completed by Mr. Harris, and in contrast to the La Farge painting, represents the Angel of the Sun, spirit of the orb of day.

High up above the central altar to the right and surrounded by a group of adoring angels, painted by La Farge, is the figure of "The Angel of the Sun," designed by Mr. Harris, and repeating the colors of the ornamental windows on either side of Byzantine design, one



THE CHAPEL OF ST. AGNES,
CHURCH OF THE PAULIST
FATHERS, NEW YORK CITY.
DECORATIVE PAINTINGS BY
WILLIAM LAUREL HARRIS.



A CARVED DOORWAY IN THE CHURCH OF
THE PAULIST FATHERS, NEW YORK CITY.
DECORATIONS BY WILLIAM LAUREL HARRIS.



From a Drawing.

*The windows by the late John La Fargé.
The paintings by William L. Harris.*

EAST END OF THE CHURCH OF THE
PAULIST FATHERS, NEW YORK CITY.



From a Drawing.

THE CHAPEL OF ST. JOSEPH
IN THE CHURCH OF THE PAULIST
FATHERS, NEW YORK CITY.
DECORATIVE PAINTINGS BY
WILLIAM LAUREL HARRIS.



From a Drawing.

THE CHURCH OF THE PAULIST FATHERS IN NEW YORK CITY. PROJECT NOW BEING CARRIED OUT. DECORATIVE PAINTINGS BY WILLIAM L. HARRIS. WINDOWS BY THE LATE JOHN LA FARGE.



*From a Drawing.
Paintings by William L. Harris.
Sculpture by Bela L. Pratt.*

CHAPEL OF THE BLESSED VIRGIN (LADY CHAPEL),
CHURCH OF THE PAULIST FATHERS, NEW YORK CITY.

portraying the glorification of the cross, set with jewels, and the other representing a Byzantine arcade, with deep blues, ambers and purples, by La Farge.

The Angel of the Sun is radiant in its colors of silver, purple, orange and flame, with the wings of the figure embossed with precious metals and the halo in relief, outlined to represent the refulgent rays of the declining orb of day.

The robe of antique pattern is the traditional long garment, with dalmatic embroidered and over-shot with gold. This angelic figure carries in its hands a blazing globe symbolical of spiritual cheer and benefits to mankind.

The purpose of grouping the angelic host about the high altar in Saint Paul's Church is to follow closely the Ecclesiastical traditions. A similar theological scheme of decoration is to be found in the thirteenth century stained windows at Rheims, where the angels of the Sun and Moon are rendered in iridescent glass; and in Chartres Cathedral where Cherubim and Seraphim are shown resplendent with flaming and multicolored wings.

In the Angel of the Sun the artist has painted the figure with decorative effect, and right here might be contrasted the difference between an easel picture and a large mural painting.

In an easel picture the artist produces an effect and illusion which is manifest in the canvas, but in mural painting, atmosphere and radiation of light must be taken into consideration.

While engaged in painting his picture of the Crucifixion, Mr. Harris calculated that it must penetrate or carry through an atmosphere of at least two hundred feet, and almost similar conditions were considered in planning the Angel of the Sun.

Thus atmosphere, color, light and dis-

tance, all these problems must be figured to a successful conclusion by the artist of an elaborate mural decoration.

Mr. Harris occupies a unique position in his monastery studio within the Paulist Church. His studio is filled with color studies and designs for mural painting, including an original study for a head of Saint John, by Mr. La Farge; designs for the Crucifixion, and mosaics of Ravenna, and examples of colorful stained glass from Chartres, a primitive tryptych and medieval tapestries of quaint design.

During the summer the artist has a studio at Lake George, where numerous studies and pictures are evolved for the Church of Saint Paul the Apostle.

Two recent examples of his art destined for the Paulist Church are the symbolical paintings of Saint Rose of Lima of the Dominican order, and Saint Elizabeth of Hungary, patroness of Charity, and Duchess of Thuringia.

These decorative panels will be placed above the massive columns of the nave filling the space between the Roman arches.

Above these panels and beneath the clearstory the general scheme of decoration will include a series of scenes depicting the life of Christ and exemplifying the virtues of various saints.

Here will appear the Adoration of the Wise Men, supplemented by the commanding figure of Saint Thomas Aquinas, patron of learning, the picture of the Presentation in the Temple, and Saint Vincent de Paul, patron saint of charity; thus the series will continue throughout the wall space of the triforium.

When it was building the massive church was laughingly described as Father Deshon's fort, and time has proven that it was a fortress indeed to preserve the high ideals of American art.



ENTRANCE DETAIL--RESIDENCE OF J. W. HERBERT, ESQ.
HARRY ALLAN JACOBS, ARCHITECT.



THE FIRST STAIR—RESIDENCE OF J. W. HERBERT, ESQ.

Harry Allan Jacobs, Architect.

THE CITY HOUSE TO DATE

THE RESIDENCE OF J. W. HERBERT, ESQ.
HARRY ALLAN JACOBS,
Architect

THE CITY RESIDENCE, especially in New York, has seen a remarkable evolution from the days of the old "brown-stone front," being first made domestically habitable and gradually made architecturally presentable. Above all, old stupidities in planning were done away with: the waste space of the old high "stoop" and area-way was used as added floor-space by moving the building to the extreme front of the lot, the entrance was placed almost on the street level, and led into a foyer, often the entire width of the lot, instead of into the old-fashioned narrow hall-

way. The private self-operative elevator had much to do with the remaking of the city house, and the more important rooms no longer had to be crowded into the first floor.

Architects began to realize that a twenty-five-foot city lot does not admit of waste space in unnecessary hallways, and the city house plan was developed so that large rooms opened into each other and effected a sense of space.

The city residence recently designed and built for J. W. Herbert, Esq., at 835 Fifth Avenue, in New York, by Harry



FIRST STORY DETAIL—RESIDENCE OF J. W. HERBERT, ESQ.

Harry Allan Jacobs, Architect.

Allan Jacobs, embodies some unusually interesting and distinctly new ideas in arrangement and treatment.

Architecturally one of the most salient features is the fitness of *scale* shown throughout. The façade is in no sense monumental, and huge consoles and cartouches are pleasantly absent—in their place being a type of detail both conceived and rendered with a nice *finesse*. The material is a white marble, and the ornament is used both sparingly and with a reserve lacking in most attempts at adapting the style of the Italian Renaissance. The entrance door and lower window are framed with delicate carving, and the base of the building is marked off, not with a heavy rusticated treat-

ment (which would tend to throw the whole design out of scale), but with a projecting block course, carved in low relief over a quietly ornamental bed-mould.

On the second floor—the *premier étage* of the French architect—the tall windows express the lofty living-room within, and the story above is severely plain in order that the terminating story, ornamented with carved panels and a medallion of figured marble, may have greater emphasis. Above the cornice a roof of green Spanish tile, with in-set windows, completes the façade. The whole shows an accurate sense of proportion and a nice alignment of parts—an architectural illustration of Plato's definition:



RESIDENCE OF J. W. HERBERT, ESQ.
HARRY ALLAN JACOBS, ARCHITECT.

"The artist brings all things into order, making one part to harmonize and accord with another, until he constructs a regular and systematic whole."

For a building which is comparatively small, and which must be complete in itself, the choice of style is, in this instance, and in some other buildings (by the same architect) presenting similar requirements, a very fortunate one. It is

architecturally immoral influence of the Beaux Arts School. And such an example presents, upon superficial glance, much to support the tirades of the anti-French faction.

Entering the door of the Herbert residence, a small lobby, with a floor in varicolored marbles, gives to the right into a reception room, and *en face*, into the foyer. The reception room is quietly



THE DINING ROOM—RESIDENCE OF J. W. HERBERT, ESQ.

Harry Allan Jacobs, Architect.

interesting to compare the nicety of scale in this façade with the brutality shown in the detail of the house immediately adjoining it on the right of the illustration. The cornice of this adjoining building (placed far too low for the inordinate height of the two-story roof) is of a scale which would not be out of place on a monumental public building, and the whole conception of the detail, in comparison to the delicate little marble façade beside it, would furnish an admirable weapon for those militant detractors of French architecture, who, ignoring its manifold excellences, rave about the ar-

decorated with a simple cornice, fumed oak trim and a damask wall-covering of harmonious shade.

In relation to the foyer, which is treated in genuine caen stone, the dining-room lies on axis, its walls also of caen stone, with a wainscot of Escalette marble and tall panels of the same marble. An additional note of subdued color is found in the "antique gold" ceiling, and any impression of severity which the simple wall-treatment might produce is relieved by the richly carved Italian mantel. The broad expanses of caen stone will provide admirable setting for tapestries.



THE DINING ROOM—RESIDENCE OF J. W. HERBERT, ESQ.
HARRY ALLAN JACOBS, ARCHITECT.

which would give the finishing touch of warmth and decorative atmosphere.

A study of the first floor plan will show several clever utilizations of space for small retiring-rooms, lavatories, etc., disposed under the marble stair that leads to the *premier étage*, or second floor.

Here is the most unique and effective feature of the house—the broad and lofty living-room. Its width is the entire lot-width exclusive of side walls, and its height is seventeen feet in the clear. The scheme by which this great room, so unusual in a city house, was obtained, is an original one with the architect, and results from an avoidance of the dark middle foyer or hall, and the bold introduction of the staircase, decoratively treated, into the living room itself.

The effect is splendid, for the impression is of a great living hall in a large country house. The room is panelled in quartered oak from floor to ceiling, and the window and floor trim is of Fleur de Peche marble. The freedom with which the whole interior has been handled makes it essentially a living room, in spite of the obvious dignity lent by its proportion.

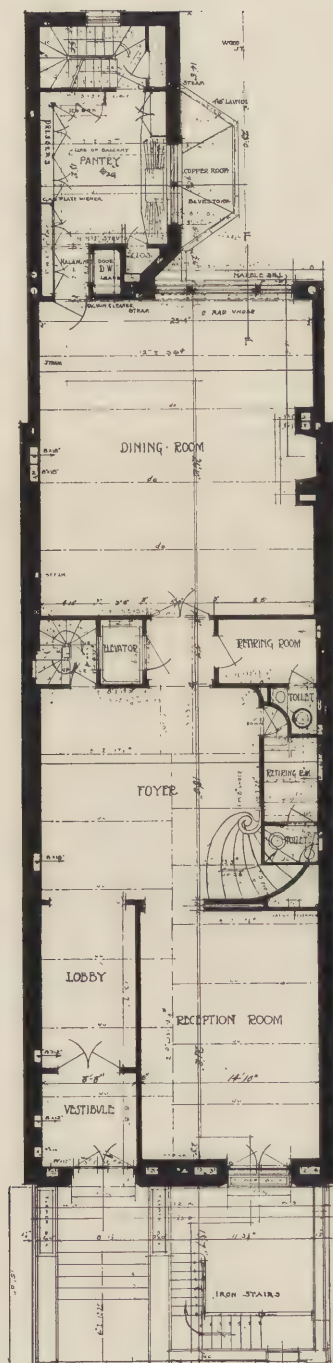
The mezzanine floor formed by the stair landing is treated as a balcony for use as a musicians' gallery, while beneath is the small floor area necessary for the landing from the first flight of stairs and from the elevator.

On axis with the great living room is the salon or drawing room, which combines in its decoration, in an elusive way,

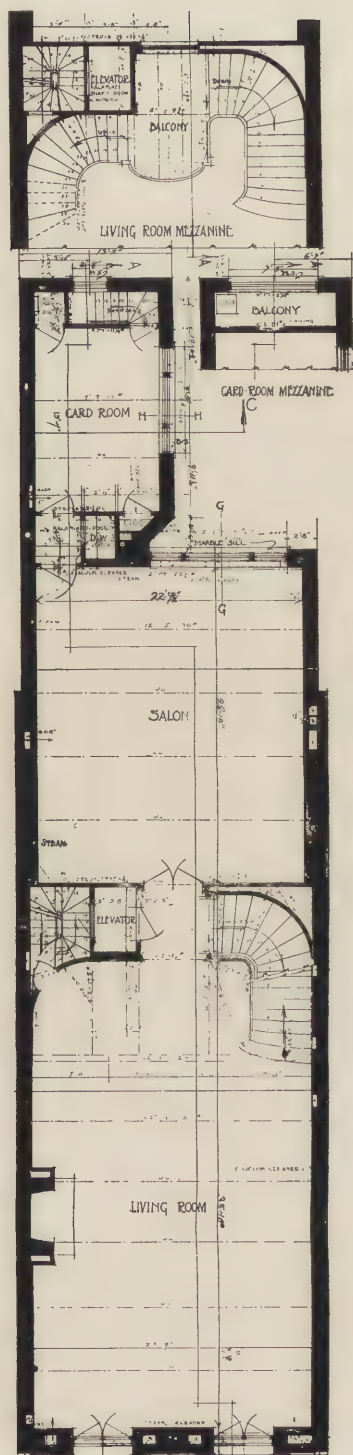


A TAPESTRY SCREEN AND DETAIL OF CARVED STAIRCASE—RESIDENCE OF J. W. HERBERT, ESQ.

Harry Allan Jacobs, Architect.



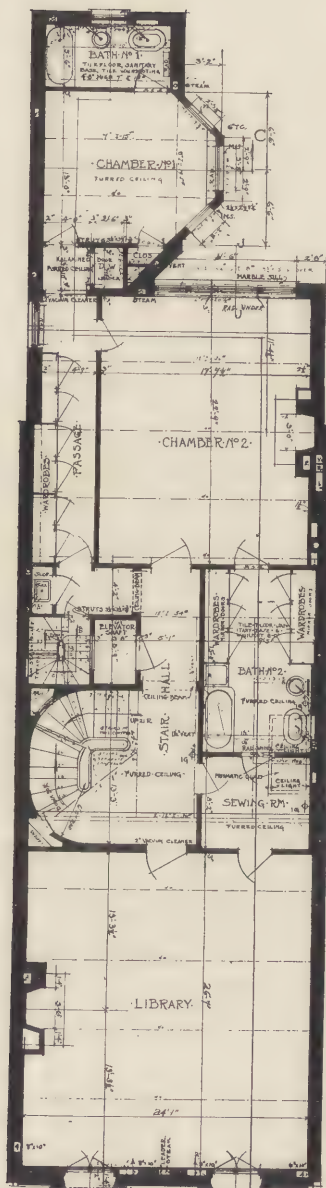
PLAN OF FIRST FLOOR.



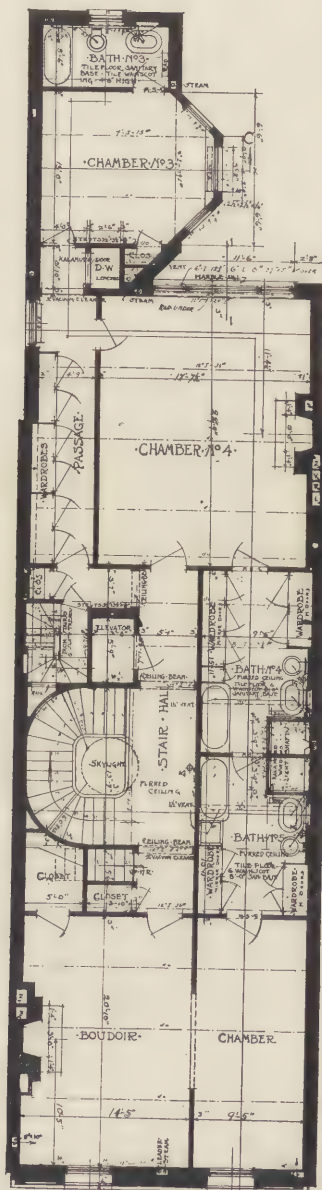
PLAN OF SECOND FLOOR.

RESIDENCE OF J. W. HERBERT, ESQ., NEW YORK CITY.

Harry Allan Jacobs, Architect.



THIRD FLOOR PLAN.



FOURTH FLOOR PLAN.

RESIDENCE OF J. W. HERBERT, ESQ., NEW YORK CITY.

Harry Allan Jacobs, Architect.



THE LIVING ROOM, WITH MEZZANINE BALCONY—RESIDENCE OF
J. W. HERBERT, ESQ.
HARRY ALLAN JACOBS, ARCHITECT.



THE DRAWING ROOM—RESIDENCE OF J. W. HERBERT, ESQ.
HARRY ALLAN JACOBS,
ARCHITECT.



THE DRAWING ROOM—RESIDENCE OF J. W. HERBERT, ESQ.
HARRY ALLAN JACOBS, ARCHITECT.

some sense of the refinement of the Adam style and the richness of the Italian. Its color scheme is gray and gold, with panel and pilaster wall-treatment and an exquisite plaster ceiling in gray and white. A small room adaptable either as a card room or a breakfast room, is reached through a door in the corner of the east wall.

On the third floor there is the library, and two bed-rooms, with innumerable conveniences in the matter of closets and much economy in planning, which is also evident on the floor above. No waste space exists anywhere in the house.

Its most unusual feature, however, and

its feature entirely due to the originality of Mr. Jacobs, is the handling of the staircase problem. No stair here is *continuous* over one flight, which allows of each flight being treated individually on each floor, and in conformity with the scheme of each. In a narrow house it is impossible to give any architectural character to a staircase which runs five flights continuously, and the successful expedient in this house should be a matter of no small congratulation to the architect, who must go on record as having achieved a thoroughly successful and practical as well as a distinctly esthetic city house—a remarkable solution of a difficult problem.



THE LIVING ROOM—RESIDENCE OF J. W. HERBERT, ESQ.

Harry Allan Jacobs, Architect.



BRONZE GRILLE WINDOW FOR THE GREENHUT MAUSOLEUM.

Robert I. Aitken, Sculptor.

Stone, Gould and Farrington, Architects.

THE ARCHITECTURAL LEAGUE OF NEW YORK NOTES ON THE 28th. ANNUAL EXHIBITION

LAST YEAR there was shown a preponderance of mural painting and sculpture in proportion to architecture proper. It was not an exhibition of architecture and the allied arts, but of the arts with a little allied architecture. Such an arrangement of an architectural exhibition is to be cordially commended if it tends toward the exclusion of poor or mediocre architectural entries by limiting the hanging space.

It is doubtful, indeed, if the three large galleries of the Fine Arts Building could yearly be filled with a fresh showing of current architecture worthy of hanging space, and this has very likely led to the present proportion—about three parts allied arts to one part architecture. It is not to be assumed from this that the allied arts are playing a proportionately important part in our current architecture, outside the galleries. They are not. Outside the galleries the proportion might be more nearly stated as sixty per cent. building, thirty per cent.



architecture and ten per cent. allied arts. Perhaps such an allotment shows more architecture than really exists.

If the type of exhibition recently held by the Architectural League of New York will eventually bring about an active alliance between architecture and the allied arts, instead of the existing and rather passive *entente cordiale*, a splendid end will have been achieved, and in the meantime the visitors to the exhibition may safely be said to be spared much ill-advised architecture which would fill the space of the present showings of mural decoration.

Sincerely granting to the allied arts the immensely significant part which they have, should and will occupy in the practice of architecture, it is the purpose of this review to deal more especially with the architectural exhibits in this 28th Annual Exhibition.

In the small gallery off the entrance hall there is displayed the work of the student-draftsman of the Ameri-



A PORTION OF THE DECORATION FOR THE
DOME OF THE WISCONSIN STATE CAPITOL.
EDWIN H. BLASFELD, PAINTER.
GEORGE B. POST AND SONS, ARCHITECTS.

can Academy at Rome—an edifying array of earnest and ambitious work which, as performed largely under the guidance of the ateliers of the American Society of Beaux Arts Architects, must go far toward drawing together French and American ideals of architecture.

The first large gallery is occupied entirely with drawings and paintings for mural and stained-glass work, in a riot of line and an insurrection of color.

Church in New York, and much other ecclesiastical work less notable. Robert V. V. Sewell is represented by several of his rather pre-Raphaelite paintings—the “*Galahad*” and the “*Call to War*” more decorative than the more ambitious but too-pictorial “*Sirens*”; F. Luis Mora, with “*Youth*,” a frieze-like painting in warm summer colors, and W. T. Benda with an allegorical “*Life*” (less happy than his “*Amazons*” of last year) are



SUCCESSFUL COMPETITIVE DESIGN FOR THE MISSOURI STATE CAPITOL.

Tracy and Swartwout, Architects.

Pre-eminently, there are some fragments of the Wisconsin State Capitol paintings by E. H. Blashfield, who reappears yearly with his accustomed strength and dignity. If the splendid surety and perfection of his performance had not come to be expected of him, no doubt there would be louder acclaim. But perhaps our quiet assurance, our pre-conceived certainty that he will never disappoint is the greatest praise of all, even though it be not accompanied by a clashing of cymbals.

There are several of William Laurel Harris' eminently successful studies for the decoration of the Paulist Fathers'

among the more informal decorative painters, and H. W. Faulkner shows a “nocturne” of a court-yard in the Alhambra which is worthy of Jules Guérin.

Louis Schaetelle again demonstrates his amazing draughtsmanship and his palpitating sense of action and color, and Hugo Ballin does not disappoint. There are two pleasantly painted decorations by J. M. Hewlett, who achieved much distinction with his designs for the “Chanticleer” scenery, and between them an effective impression of the work on the Pennsylvania Station Excavation by Fred Dana Marsh.

Perhaps the most decorative small



"BROOKHOLT," A COUNTRY RESIDENCE ON LONG
ISLAND. HUNT AND HUNT ARCHITECTS.

painting in the gallery is a *galant* little panel after the manner of Fragonard or Watteau, done by Louis Vaillant. It is a thoroughly successful decoration, which is more than might be said for many more ambitious works of this and last year's exhibitions.

In the second or middle gallery there are a few architectural exhibits, much sculpture, many "unclassified" entries of

satisfying in its excellence of proportion. The same architects also show photographs of "Brookholt" Mrs. Belmont's country-place, designed with a strong restraint and in classic vein very different from their over-ornate "Castlegould" shown in many photographs in the Vanderbilt gallery. "Brookholt" gives the impression of being an American expression of an American idea (or even



HOUSE AT GARDEN CITY, L. I.
Oswald C. Hering, Architect.

such popular nature as book-plates and the like.

One is attracted by four strong drawings by Carton Moorepark, whose remarkable renderings of city architecture have attracted considerable attention lately. Numerous drawings by others are hung in this gallery, and two of Henri Deville's notable architectural etchings.

A frame of photographs from the office of Hunt and Hunt contains a group of illustrations of that dignified city residence at 645 Fifth Avenue, by no means a recent building, but perennially

ideal) while the castle cannot honestly be taken either as an American expression of a European idea, or a European expression of a European idea—it does not "belong."

In this middle gallery there are the scale models in the Avery competition, for an award offered annually to three collaborators—an architect, a painter and a sculptor. The program this year required a scheme for "The Interior End Wall of a Railroad Station, with a Monumental Clock," and it was fairly and obviously won by Kenneth M. Murchison, architect. Charles Sarka, painter,



SUCCESSFUL DESIGN FOR THE AVERY COLLABORATIVE COMPETITION.
Kenneth M. Murchison, Architect; Charles Sarka, Painter; Leo Lentelli, Sculptor.

and Leo Lentelli, sculptor, though the other entries show more than ordinary excellence. The winning model, which is illustrated, shows a peculiar perfection in its general proportions, particularly in the spacing and disposition of the engaged columns—a nicety of study which would have gone far to bring the first award even if the design had failed in other respects.

Other architectural exhibits in this gallery are photographs of a large hospital designed by York and Sawyer—sane and well-mannered in detail and with the mastery of plan which is associated with the firm. Here is also another house which is by no means new, but which bears meeting more than a second time—the Flagler House, a New York City residence on Park Avenue, by Little and O'Connor, admirably (and appropriately) rendered in the style of Holland Dutch. The exterior is cheerfully fashioned of warm brick, with very happily introduced green faience, while the interiors bear out the pleasant and consistent handling of the façade.

Few types of building are more difficult to achieve gracefully than the small or medium-sized detached dwelling, but in two examples at New Haven shown in photographs from the office of Murphy and Dana, the designers may be said, as the French would put it, to have “issued forth” successfully.

The architectural pilgrim is at last in

sight of his goal at the threshold of the Vanderbilt gallery, entering by way of a splendid bronze portal from the new Guaranty Trust Company Building, by York and Sawyer.

There are not over-many monumental or very important buildings shown, but those that are exhibited may be seen without regret. Tracy and Swartwout, in their successful competition drawings for the State Capitol of Missouri, show a dignified conception, “governmental” in every line. The style is based on classic precedent, but more largely on the character of the older buildings at Washington, such as the Capitol and the Treasury Department, and with its site on a high bluff, its dome will rise some two hundred feet above the Missouri River, and command the view for fifteen miles up and down the river. It will be remembered that this competition was the first ever conducted in accordance with the tenets of the American Institute of Architects, and that the circumstances of its final award met with wide popular approval and commendation.

The office of McKim, Mead and White shows, in addition to several renderings of interesting country houses, two large photographs of the new Post Office building for New York City. Here is a building strongly expressive of the old ideals of the firm—perhaps more militantly classic than of old, and with nothing of the Italian Renaissance, but beautifully



NEW YORK CITY POST OFFICE.
MCKIM, MEAD AND WHITE, ARCHTS.

dignified. It is obvious that a façade of such extreme simplicity must be excellently in proportion, or a woeful failure—and the Post Office is not a failure. It is only to be regretted that such a splendid monumental building forms no part of a civic centre plan. It would have looked well opposite the New York Public Library, on Fifth Avenue at 42d Street. An inscription in well-designed incised letters, at heroic scale, traverses the frieze—an inscription curious, per-

designed for the ingress and egress of daily thousands, "New York Post Office" would insult the intelligence, and even the somewhat cryptic legend on the frieze is by no means a riddle.

Donn Barber is well represented by his reservedly designed building for the headquarters of the Young Women's Christian Association in New York, and shows as well a scholarly study for a ceiling for the Hartford National Bank, done in the vein of the Italian Renais-



RESIDENCE OF WM. H. BACON, ESQ., BRONXVILLE, N. Y.

Bates and How, Architects.

haps, for a monumental building, but pleasing in itself: "Neither rain nor snow nor heat nor gloom of night stays these couriers on the swift completion of their appointed rounds."

From this, and from the names and dates which outline the inception and history of the postal service, carved on the flanking pylons, future generations are to infer that the building is a Post Office. Not that even a captious critic would deny the aptitude of the design, for the wide steps and the many doors are suggestion in themselves that it is

sance. There are also photographs of the building.

The Pittsburgh Baptist Church shows Cram, Goodhue and Ferguson in their rôle of master church-builders, and is powerfully supplemented by the drawings for the "Cathedral of the Incarnation" at Baltimore. Other church studies are the finely executed pencil drawings by Carrère and Hastings for the St. Francis Chapel of the Cathedral of St. John the Divine in New York.

A well-studied civic addition from the office of Arnold W. Brunner is the great



HEADQUARTERS BUILDING FOR THE YOUNG
WOMEN'S CHRISTIAN ASSOC., NEW YORK CITY.
DONN BARBER, ARCHITECT.

stadium to be built for the College of the City of New York, in which the designer has shown his accustomed grasp of large ideas practically expressed.

Among the country house architects there are a number of familiar faces, Albro and Lindeberg showing renderings for several new buildings, and large mounted photographs which present permanently pleasing impressions of the Rossiter, Kerr and Babcock houses,

three of their recent successes. There is an incisive quality of surety about this work which will make it long outlive much contemporary work which might be called either reminiscent or experimental. In a divergence into the field of landscape architecture the same firm shows a thoroughly charming drawing for an even more charming rose-garden for Dr. Ernest Fahnestock at Shrewsbury, N. J.



A COTTAGE AT DANBURY, CONN.
PARKER MORSE HOOPER, ARCHITECT.

There are groups of photographs and a characteristically visionary rendering by Jules Guérin of Grosvenor Atterbury's interesting work at the Sage Foundation Homes—the picturesque rendered (literally) in concrete form, not to speak of brick, which latter has been used with remarkably successful thought toward ideas of pattern and texture.

The only theatre in the exhibition is shown in photographs of "The Little Theatre," designed with great perfection and pleasing effect by H. Creighton Ingalls and F. Burrall Hoffman.

The Philadelphians—Wilson Eyre, D. K. Boyd and Duhring, Okie and Ziegler, strike the refreshing and saliently sincere note of the Pennsylvania type in several very livable country houses, and MacClure and Spahr, of Pittsburgh, show two photographs of an unusually well-expressed Tudor house at Sewickley Heights.

Nearby are photographs from J. Wheeler Dow, showing his now famous but never tiresome Rabbit house, together with another distinctly picturesque achievement, called "Krys Kringle Cottage."

In the same corner of the gallery is one of the very few landscape schemes shown—a formal garden from the office of the Olmsteads.

A well-expressed city house in brick, by W. A. Boring, contrasts with three violently overdone city houses by Taylor and Levi. A twenty-five-foot front can support only a certain amount of architecture.

The remarkable development of the uptown commercial building, especially on Fifth Avenue, is shown in three large photographs from the office of Carrère and Hastings—the Alexander, the Knoedler and the Black, Starr and Frost buildings. The first will be remembered by its cheerful façade, a delicate rendering of Italian Renaissance, with *sgraffito* decoration, while the second two are in the same general style, more formally rendered—the Knoedler Building, rather severe, in imported Chassignelles limestone and the Black, Starr and Frost Building beautifully and delicately detailed in white marble.



A DRAWING BY CARTON MOORE PARK—REAR VIEW OF THE WOOLWORTH BUILDING, NEW YORK CITY.
Cass Gilbert, Architect.

One of the most successfully designed churches of recent date, St. Joseph's, at Babylon, L. I., by Reily and Steinback, appears in a group of photographs. Here is a study in the Byzantine type of church architecture which ranks easily with McKim, Mead and White's Parkhurst Church on Madison Avenue at 24th Street and the chapel at Columbia University by Howells and Stokes. Reily and Steinback also show an equally happy design for a rectory at Long Beach, L. I.



BUILDING FOR BLACK, STARR AND FROST, NEW YORK
CITY. CARRÈRE AND HASTINGS, ARCHITECTS.



HENRY CHASE LEA MEMORIAL, PHILADELPHIA, PA.
A. STIRLING CALDER, SCULPTOR.
ZANTZINGER, BORIE AND MEDARY, ARCHITECTS.

A small church of different style, but pleasing appearance, is shown by Walker and Gillette in "St. George's-by-the-River," at Seabright, N. J. The style is the sturdiest type of Norman English, close to the ground, stone-buttressed and square-towered, and showing as in the church at Babylon, mentioned above, that execution rather than choice of style makes for success.

There are photographs of the Stevens House, of Spanish-Italian aspect, also by Walker and Gillette, and in this rather difficult style is a remarkable country place at Huntington, L. I., by Allen W. Jackson of Boston. A carefully constructed scale model bears out the several groups of photographs in the statement that here, besides a distinctly unique abode, must have been one in which architect and client worked in happy accord and with common enthusiasm.

Aymar Embury II shows his perennial facility in the design of the small country house, and here, too, a well-studied alteration. In picturesque "half-timber" technique he has done a small country library, with pleasing result, and a no less successful small house in his well-understood adaptation of the Dutch Colonial. In another small house, however, the "Colonial" (Georgian in this case) is blatant. It is difficult to see the house behind it.

Returning to city buildings there are two interesting (and by no means unsuccessful) contributions to "The Towers of Manhattan" from the office of Willauer, Shape and Bready—the Candler Building on 42d Street and a novel "skyscraper" office building at 50 Broad Street.

Mention should be made of the drawings and one model for the Perry Memorial—work from several offices, the winning design being that of J. H. Freedlander and A. D. Seymour. The conception is of a colossal Doric column, in a formal water-side setting of monumental terraces and parking—well calculated to be very impressive through its simplicity and classic severity.

Of the sculpture, there is a recurrent dignity and surety, comparable only to

that of E. H. Blashfield as a painter, in D. C. French's Kinsley Memorial for Woodlawn Cemetery. And that basic essential of all lasting sculpture, *dignity*, struck again in Mr. French's heroic figure for the Lincoln Memorial, unveiled at the town of Lincoln, Nebraska, shown in a photograph.

Well in this class is A. Stirling Calder's peculiarly impressive Lea Memorial, in Philadelphia—a quiet, silent, yet remarkably gentle female figure is seated, enframed with a great wreath, and holding upright on her knees a great closed book. It is a conception out of the ordinary and seems potent with half-formulated yet imminent suggestions.

One regrets that Karl Bitter, in his "Louisiana Purchase Group," has either seen fit or been directed to depart from his own virile style to resuscitate, as it were, the old idea of the "Rogers Groups." Sculpture should first be dignified and second, symbolic, but here is a rendering of startling literality. Certainly the sculptor's well-known and powerful work in the vein of the Assyrian or the archaic Greek was vastly to be preferred to this example, which seems undecided in its own mind as to whether it shall declare itself as a bas-relief or "in the round."

The exhibition is seen—its impressions and its lessons assimilated. It has been called the barometer of current architectural development, and yet, unless one were a seer or a prophet, this could not be. If a simile is demanded, let us rather think of it as a thermometer, indicating what is, and remaining inscrutable regarding to what is to be. Certainly in this exhibition, or in that of last season there is nothing that should send the critic, Cassandra-like, out to shout perdition from the house-tops, or that architecture in America is going to the dogs.

Always with the intent of winnowing the wheat from the chaff, there will be found abundant promise in the greater proportion of such architecture as displays itself under the sheltering wing of the Allied Arts at the yearly exhibitions of the League in New York.



A CORRIDOR IN THE HOTEL McALPIN, NEW YORK CITY.
F. M. Andrews and Company, Architects.

NEW YORK'S NEWEST HOTEL

NOTES ON THE HOTEL McALPIN
F.M. ANDREWS & COMPANY.
ARCHITECTS.

By DAVID E. TARN

THE ARCHITECTURE of a building of a specific nature should be a symbol. Therefore, if a given building is to be a success, let its architectural design symbolize, in so far as possible, the type of building it is desired to express.

The storage warehouse should suggest ideas of strength, the bank, stability, and the theatre, festivity. With the hotel there are a set of suggestions to be expressed, which, when definitely realized and grasped, must infallibly make the building a popular success even if it cannot be said, from an academic standpoint, to be good architecture.

That old ideas of hotel design and

treatment were ill-taken was evidenced by the yearly abandonment of once-popular hotels as soon as new ideas come in. It is a long call from the old Astor House on lower Broadway to the Hotel Astor on Times Square—and now even the latter is not reckoned a “new” hotel. In New York the old Fifth Avenue Hotel, the Grand Union, the Murray Hill, the Chelsea, and once most magnificent of all, the Park Avenue Hotel—these are “one with Nineveh and Tyre,” their glory departed, their clientele confined almost entirely to ultra-conservative patrons.

Perhaps the turning-point came with



THE MAIN LOBBY—THE HOTEL McALPIN, NEW YORK CITY.
F. M. ANDREWS AND COMPANY, ARCHITECTS.

the Waldorf—the first hotel designed with the same ideas that have prompted the designing of more recent hotels. It would almost seem that there is a formula to reckon with—a formula constant in its general intent and varied in certain details only to meet the ever-crying demand for novelty. A certain amount of marble, a certain amount of

cessful, therefore, exactly in proportion as it pleases the public. Now within certain broad bounds it is safe to say that the public, generally considered, is pleased if it is given what it expects. Consequently, if a hotel has no marble, no gilt, no mirrors, the public is apt to feel itself grievously slighted if it is invited to the opening of a new hotel



LADIES' RECEPTION ROOM—HOTEL McALPIN, NEW YORK CITY.

F. M. Andrews and Company, Architects.

gilt, some palms, some large mirrors, some lofty ceilings, over all an atmosphere of Gallic festivity and Midian opulence, and you have the modern hotel, be it the Bellevue in Philadelphia, the Willard in Washington, the Blackstone in Chicago, or one of the glittering palaces of New York. And the reason?

The reason is simple compared with the over-sophisticated and complex architecture which has grown from it, and which can be called only by its right name—"hotel architecture." A hotel is, from its nature, a building of a distinctly public nature, and is commercially suc-

cessful, therefore, exactly in proportion as it pleases the public. Now within certain broad bounds it is safe to say that the public, generally considered, is pleased if it is given what it expects.

Consequently, if a hotel has no marble, no gilt, no mirrors, the public is apt to feel itself grievously slighted if it is invited to the opening of a new hotel

So, in succession, there appeared in New York after the Waldorf, the Manhattan, the Astor, the Belmont and the Plaza, with many others, and with sundry off-shoots in other cities. The new Hotel Rector out-glittered all others with mirrors and crystal chandeliers, while marble and gilt filled the very air. I should have said above that the public is happy in getting exactly what it expects up to a certain limit. But even the public, like the proverbially ill-



THE MAIN DINING ROOM—HOTEL McALPIN, NEW YORK CITY.
F. M. ANDREWS AND COMPANY, ARCHITECTS.



THE LADIES' RETIRING ROOM, HOTEL McALPIN, NEW YORK CITY.
F. M. ANDREWS AND COMPANY, ARCHITECTS.

treated worm, will turn, and when it does, its cry is "Novelty—give us something *new*." Following the public demand, a different sort of architecture was introduced with considerable success in the Carlton House, variously called "The Ritz" and the "Ritz-Carlton." Here was a liberal adaptation of the "Adam" style, and a closer copy of certain details of this hotel's London prototype. Here the patrons were, by indirect implication, to be pleased by the decorations or to be self-confessedly socially *declassé*. It was the "thing" to consider this hotel as "smart," and "smart" it was from the day its doors opened. Encouraged by its success the Hotel Vanderbilt also essayed, with success varying in certain details, to popularize the "Adam," though as a further concession to popular caprice it presented a unique feature—a dining-room styled the "Della-Robbia Crypt," which "took" with all comers for a variety of reasons. Some are interested because it is really a very pleasant place to eat, others because the reason for its "Della-Robbia" designation is a piquant riddle, and a few, perhaps, because of the cheerfully gruesome ineptness of calling a dining-room a "crypt."

And now there has been opened the newest hotel in New York—the McAlpin, and it is interesting to note the differences and the similarities which exist between it and its many predecessors and near-contemporaries.

Architecturally the exterior is obviously "new," of no specific style, but very effective in its use of textured brick and modelled terra-cotta ornament—essentially a modern expression of design. The hotel is not entered from the front, which is occupied somewhat detrimentally by shops, but by two side entrances, making the lobby a long arcade running north and south between Thirty-third and Thirty-fourth streets.

The main portion of this lobby rises to the clear height of two high stories, and is refreshing in that it is not in a much be-gilded attempt at a French style. If it claims any "style," as such, "modified Italian Renaissance" might describe it, fairly severe in imitation

caen-stone, relieved as to color only by a succession of brilliant lunettes far over-head.

Those who lay store in statistical facts may find interest in the following: that the building contains seven miles of heating mains, risers and returns, that there are 115 miles of electric light wiring and 13,000 tons of steel in it. 150,000 tons of rock, 1,875,000 cubic feet (more stone than is contained in the great pyramid of Egypt) were blasted out of the excavation for the foundations. The working force will comprise 1,500 people, and the accommodations number 1,500 rooms and 1,100 private baths. While not necessarily edifying in themselves, and without comparison, these figures are indicative at least of the magnitude of the modern American hotel.

Recently a deputation of hotel men from Germany, that nation so generally self-sufficient in all things, visited this country to study our hotels, and returned saying that America should be the greatest school for hotel-building in the world by reason of the marvellous completeness which our public demand and constant competition have produced.

In the matter of conveniences the McAlpin is, perhaps, "the last word," but of this aspect of the hotel question, more later.

In its decoration the desideratum would seem to have been a certain dignity and even richness without profusion. Certainly the main lobby would illustrate this, and its mezzanine lounge is given an added interest and an unquestionable note of good taste by its tapestry decorations. These are the product of the Herter looms, and will comprise, when completed, twenty-six exquisitely woven panels representing the city's history—rich and subdued in color, and ever interesting and satisfying in that great decorative essential which is called "texture."

The main dining-room is all in gold, as though its artificers had been gifted with the touch of Midas. It has been called over-powering, but on acquaintance this great gold room is restful.



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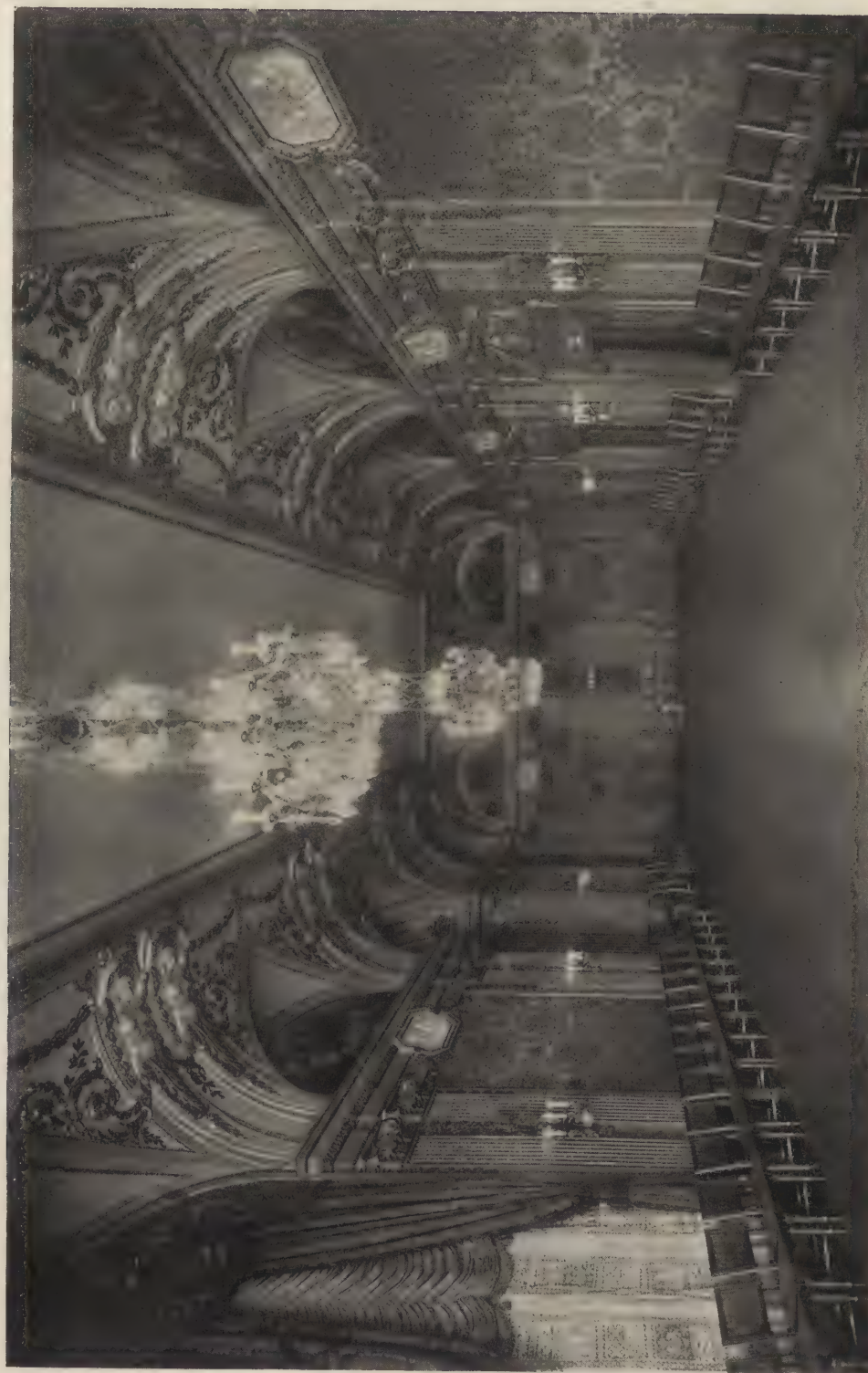
ONE OF THE TAPESTRIES ON THE MEZZANINE GALLERY,
Woven on an American Loom.

There are no other colors in ceiling or carpet or hangings, which is rather fortunate, because gold is of all colors one of the most jealous. The forest of square pillars remind us that we are, after all, in a modern American hotel, for they display on all four faces a tall expanse of flawless mirror, certainly not (according to Vignola) a structural part of any known column, yet equally certainly (according to "hotel architecture") an essential part of a hotel dining-room.

Certainly the treatment here, and elsewhere on the main floors is eminently successful in symbolizing its intent. The treatment and decoration of the ladies' reception rooms is delicate and charming in the extreme. In one of the other dining rooms the decoration overpowered the architecture, but we understand that timely intervention will restore the proper balance. The main ball-room, if it might be thought a little grandiose, improves on acquaintance, and the bar-room, German in feeling, is pleasantly



TAP ROOM—HOTEL McALPIN, NEW YORK CITY.
F. M. ANDREWS AND COMPANY, ARCHITECTS.



THE BALL ROOM—HOTEL McALPIN, NEW YORK CITY.
F. M. ANDREWS AND COMPANY, ARCHITECTS.

panelled in remarkably well selected and excellently joined Circassian walnut. A heraldic frieze gives a note of gold and color, and German gothic niches in the pillars show quaintly colored and very well modelled figures of fictional personages.

The Rathskeller or Grill-Room, entered through a massive pair of wrought-iron gates, is an interestingly low and crypt-like place of vast extent.

lounge, which is a long gallery fitted with comfortable chairs, smoking tables, a bar, a stock-ticker, a public stenographer, and numerous quiet corners for conferences, as in a club.

Yet all of this finds its counterpart in the "Woman's Floor," whereon are to be had shopping guides, chaperones and all the facilities of a well-appointed woman's club, and where there are not even men in the capacities of clerks or



A TYPICAL BEDROOM—THE HOTEL McALPIN, NEW YORK CITY.

F. M. Andrews and Company, Architects.

treated entirely in glazed terra-cotta in the manner of faience, but owing to its present incompleteness it would not be fair to inflict architectural criticism upon it. The Scot who said that "Fules and bairns should na' see unfinished work" should have added "critics" to his admonition.

Most remarkable of all in the Hotel McAlpin are its innovations. There is the "Men's Floor," which offers extensive and complete valet service, elaborate Turkish and Russian baths, and a

messengers. There is also a Ladies' Dining Room.

Perhaps the most unusual feature of all is the "Silent Floor"—an entire floor where day is made night for those who must reverse the usual working program. Here, though the sun be high, all is darkness and silence as at night. For the "traveling man" there are several large "sample rooms," for primarily, from its location in the heart of the New York shopping district, the McAlpin is a commercial hotel. But it is a com-

mercial hotel with all the glitter of the more essentially "smart" hotels—it has a roof-garden, and in its gilded dining salon is one of New York's most famous orchestras.

Today the McAlpin is "New York's Newest Hotel," but that is a distinction as fleeting as "New York's Tallest Office-Building" for already there is talk of the new Hotel Biltmore, in the Grand Central Terminal group. What new attractions can it offer? What new varia-

tion in the theme of "hotel architecture" can it show? And yet, seemingly but a month ago we marvelled at the Vanderbilt Hotel, and before that at another.

Certainly, and come what may, our present "Newest" hotel can show the visitor an amazing simplification of the machinery of existence—a marvellous catering to human needs—an architecturally appropriate setting for the daily performance of the exacting play of life in the busiest part of New York.



THE HOTEL McALPIN, NEW YORK CITY.

F. M. Andrews and Company, Architects.



THE RESIDENCE OF H. C. MERCER, ESQ., DOYLESTOWN, PA. THE TOWER TERRACE, WITH CHIMNEYS AND STAIR HOOD, PHOTOGRAPHED FROM THE WEST TERRACE.

"In many points it flies defiantly in the face of all precedent"—it is not "good architecture" but it is the outgrowth of good architectural ideas.



THE WEST SIDE, RESIDENCE OF H. C. MERCER, ESQ., AT DOYLESTOWN, PA.

"He was building from the inside outward...and risked being responsible for a house which might terrorize the whole neighborhood."

"PERSONAL ARCHITECTURE"

THE EVOLUTION OF AN IDEA IN THE
HOUSE OF H.C. MERCER, ESQ., DOYLESTOWN, PA.

By W. T. TAYLOR

DEFINITION in matters architectural is often dangerous—more so, perhaps, than in any others of the fine arts. It is very apt to be both unsafe, unfair and stupid to say "this building is bad" or "that building is good," and the reason for this is not far to seek. One may present admirable general proportions, but be unfortunate in its detail, and another, upon which exquisite detail has been lavished may be an utter failure in the matter of proportion. Neither should be summarily and comprehensively condemned, nor should either be accepted. All architectural values can only be determined by discriminating analytical study, and often one perfect doorway or the profile of

a cornice may go far to offset much else that is ill-studied and unpleasing.

In the case of the great concrete country house at Doylestown, Pennsylvania, recently conceived, designed and built by Mr. Henry C. Mercer, it would be obviously dangerous to hail it with unqualified praise. In many points it flies defiantly in the face of all precedent, but in an equal number of points its growth is from stronger and better based convictions than govern the greater part of our more widely accepted American architecture.

Here is a "personal" architecture—a building which will stand ever as a monument to the individual tastes and

beliefs of its builder. He has followed no "school" or "style" with the blind and futile energy of the copyists of today, nor has he launched a thing wholly new. Back of it all is a clearly visualized composite of impressions of Mediaevalism, rendered in an essentially modern type of construction and further brought to date by the introduction of every necessary modern convenience.

The size and peculiarity of the house impress the casual observer at once even if its architectural interest is not appreciated at its own unique values. Mr. Mercer has designed and built a large, far-from-ordinary country house comprising sixty-five rooms, and his friends who have seen it talk to others and arouse their curiosity to such an extent that the maids have to respond to frequent ringings of the doorbell.

The house has an individuality as insistent as Mr. Mercer's and as entertaining.

The architecture, particularly the ex-



THE ALCOVE AND STAIRWAY LEADING TO THE BREAKFAST ROOM.

"A composite of impressions of Mediaevalism."



THE RUSSIAN STOVE IN THE BREAKFAST ROOM.

Note the reproduction of one of the workmen's hands in the ceiling above the stove.

terior, has been criticized for its inconsistency, but this perturbs its owner not at all. He built the house for himself and in his own manner, and considers these to constitute complete reason and justification for its apparent vagaries. It is a direct and sincere expression of his architectural impressions gathered from many sources. A charge of inconsistency of design can only be applied to the building because of its mixture of the architectural schools; for there is a consistent looseness in the adaptation of various styles and periods. Mr. Mercer's reverence for the romance and charm of the old castles on the Danube and the architecture of the older countries led him to build a house which would, in his own words, "Combine the poetry of the past with the convenience of the present."

The thing that age had done to the buildings of the old lands Mr. Mercer determined to have in his house in Doylestown. To merely reproduce the style of the buildings without represent-



A SKETCH OF A TYPICAL CORNER—RESIDENCE
OF H. C. MERCER, ESQ., DOYLESTOWN, PA.
"The house has an individuality....."



THE FRONT DOOR.

"A fine piece of craftsmanship in itself, made of heavy timber, studded with large-headed nails.

ing the irregularities of form and surface caused by age would be to lose the full charm of the old architecture. The Doylestown house must have the patina of the antique without sacrifice of modern comfort.

With a memory stored with pictures of buildings studied during protracted travel in Austria, Holland, Egypt, Turkey, Italy, Germany, Spain and France, Mr. Mercer commenced the designing of his house. A keen appreciation of drawings by Adrian Ostad, Dürer, Gerard Dow, and Rembrandt prompted an effort to secure a play of light and shade in the ceilings of the house similar to that of the drawings by the old masters. One drawing was made for each wall of the sixty-five rooms, and from these drawings the rooms were modelled separately in clay. When a sufficient number of rooms for

a suite was finished in clay they were set together with regard for the relation of the floor-levels. When all of the rooms were made and arranged in suites, the suites were composed to the best advantage. Large stairways were avoided for economy of space and irregular stairways and passages made to conform with the arrangement of the suites. The roof was modelled when the suites and stairways were complete, its shape being determined by the disposition of the rooms and the chimneys. Garret space was avoided by flattening the roof for terraces wherever possible. The lines of the exterior were developed when the model had reached this stage of its growth, the outside appearance being a minor consideration to the arrangement of the interior. The clay model when completed was reproduced to scale and a plaster cast made to be placed on the ground and serve as a working model.

Before deciding on the placement of his house, Mr. Mercer spent several days in Boston for the study of the



THE GALLERY STAIRS.

The back of the balustrade in the salon appears through the opening.

houses in the north part of the city. The twisted streets gave him the desired opportunity for observation of the sunlight on the differently placed houses. With the aid of a compass he decided on the best way to place his house so as to secure the greatest amount of sunlight.

The building of the house presented many problems and resulted in the invention of some novel methods.

In order to have the work done in his own way Mr. Mercer employed day-laborers for all of the construction work. The skilled mechanic was banned and the



A CORNER OF THE BREAKFAST ROOM.



THE DOOR OF THE BAY ROOM OPENING ON THE WEST TERRACE.

The wall of the passage is treated with a mosaic of tiles.

plumb-line scorned except for the putting in of window-frames.

Concrete was selected for the material for several reasons. It could be handled in a free manner, and its variations of color and texture used to advantage in the interior. Old boards with cracks and holes were purposely used to give the face of the concrete an unevenness.

Very little measuring was done. Seeking only "a reasonably straight line" Mr. Mercer relied upon his eye for the erection of walls and columns.

The concrete was fully reinforced with iron rods and screens, but the building does not rely on this reinforcement for its strength. To avoid the dependence of beam-construction upon iron, the ceilings are, in nearly every case, vaulted. The great variety of vault-formation employed was secured in a most ingenious manner. Instead of the complicated carpentry which would have been required to erect centering and patterns of the usual kind, a platform was placed at the base of the intended vault; the platform was surmounted with grass and earth moulded into shape and covered with fine yellow sand. The concrete was then moulded from above.

The ceiling of the room for which the



THE EAST ROOM.

The bathroom is placed nearer the ceiling than the floor, and the ceiling is typically irregular.

vault was constructed and the floor of the room immediately above were made simultaneously. Elliptical and irregular vaults, which would have been impossible in stone, were easily made and the flat vault was generally adopted to avoid garret space and minimize the thrust, while the mound method also permitted the free use of groined vaults.

During the construction of the house some variations from the model were made, and if they affected the outside appearance, the model was altered to retain a suggestion of what the completed house would look like. Here, certainly, is an illustration of designing "from the inside outward." The tower of the model was painted; this was aban-

domed and a mansard roof, modified by the chimneys and the hood of the staircase, built for the sake of obtaining a high terrace commanding a fine view of rolling country and woods.

Mr. Mercer was offered much friendly criticism and advice. The small model with its irregularity had been generally approved but the aberrant form of the huge building, bristling with scaffolds, startled the neighbors. And even Mr. Mercer became a little bit uneasy in his own mind. Still he held firmly to the determination he started with, not to "construct any decoration" nor to build merely to

look "pretty." He was building from the inside outward, and possessing the courage of his conviction, he risked being responsible for a house which might terrorize the whole neighborhood.

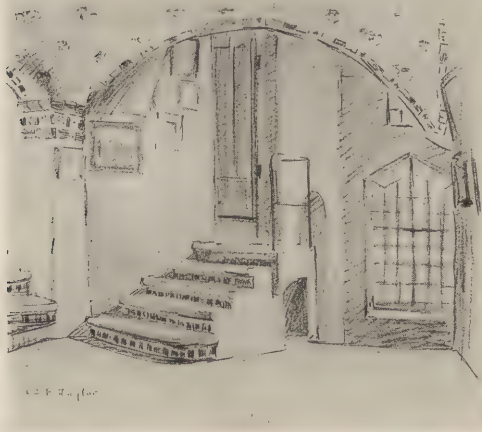
The house was made much larger than necessary for the purpose of working out problems with concrete and tile. The tile decoration with which the house is lavishly embellished throughout was part of the construction work and came from Mr. Mercer's own works. The ceilings, with their intricate designs, required on an average only a few hours' work. If the same ceilings had been put together in the usual manner by imposing the tiles after the concrete of the ceiling had set, each



A SUGGESTION OF THE CONCRETE
VAULTING.

ceiling would have required about two weeks' time. The mound method of making the vaults made possible this great saving of time and expense.

When the platform had been erected, the mound of grass and earth shaped, and the yellow sand distributed over the mound with a depth of two inches, the tiles were placed face downward in the



PASSAGE SHOWING DOOR OF THE EAST
ROOM.

A corner of the stairway to the West Terrace appears at the left.

sand with one-eighth of an inch projecting upward to be seized by the concrete. None of the concrete flowed over the face of the tiles, and when the mound was removed the ceiling with its decoration was complete.

The first view of the house from the public road excites one's interest immediately. The upper part of the tower, with its curiously formed chimneys and dull-red tile roofs, which harmonize well



THE STAIRWAY TO THE CRYPT.

This was the first piece of construction—the crypt has the appearance of the Roman Catacombs.

with the warm gray of the concrete, is all that is seen till the visitor enters the gate. Two concrete bridges, one for each of the two roadways which cross a stream about fifty yards in front of the building, add to the impression the tower first gives, of finding an old-world castle. The view of the exterior from the roadway does not do more than excite curiosity and more or less piqued conjecture.

But when the door with its broad, rounded steps is reached, the interior absorbs one's interest just as it did Mr. Mercer's. The irregular arch over the entrance and the beautifully arranged tiles in the risers of the steps are suggestive of what is to be found inside. The door itself is a fine piece of craftsmanship, made of heavy timber, studded with large-headed nails. The lock is an antique, but the electric button gives the touch of modern convenience.

The hall has a rich, warm hue, ob-

drawings of old masters. The large windows have cemented frames, and admit a strong light, but by the use of dark sands the ceiling holds a curious air of mystery. Its odd beam-arrangement is enhanced by the shadowy forms to be seen over the balustrade of the gallery stairs.

The library, which is entered from the salon, is also of good size. It has a balcony built of concrete and a large fireplace. The tiles used in the ceiling have a high relief, giving them a play of light



A PORTION OF THE LIBRARY CEILING.

A good example of the tile treatment of vaulting and capitals.

tained by the use of brown sand for the concrete, and reddish brown tile for the floor. An occasional tile in the cross-vaulted ceiling introduces notes of other color. The columns have tiled capitals.

The kitchen and domestic workrooms occupy the rear of the lower floor.

The salon occupies the ground floor of the tower. Its large proportions give ample space for two large fireplaces; tall pillars carry the eye to the ceiling, which justifies Mr. Mercer in his claim to a relationship between his ceilings and the

and shade in addition to their color—this being true of nearly all the ceilings throughout.

In wandering about the house one finds sometimes obscurely, the origin of the architecture of this curious house—in ceilings which suggest the crypts of cathedrals, in winding staircases which are memory replicas of staircases of ancient castles in lower Austria, in window-shapes from Constantinople, balustrades suggestive of Venice, and roofs reminiscent of Turkey and Germany.



THE STAIR TO THE WEST TERRACE.

The risers are inlaid with tiles, usually spelling a motto or legend.

The stairways and passages have many twists caused by their adaptation to the various floor-levels and the arrangement of the suites, and an additional complication exists because of the building being placed on a slope and the floors of the rooms in the lower side of the house having lower level.

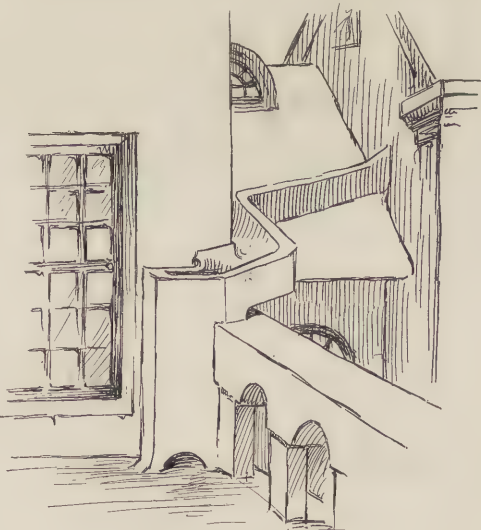
The suites are entirely isolated so that several families could live in the house without seeing each other.

When the stairs to the Belvedere were still moist and impressionable, Rollo, a

big Saint Bernard, walked up, leaving his footprints clearly defined in the concrete; "Rollo's Stair" was lettered in the risers, and the footprints will outlive Rollo.

The passages are well lighted by many windows and their peculiarities do not make them dangerous. The risers of all important stairs have tile decoration, either purely decorative or with quaintly lettered mottoes and legends.

Large open fireplaces are in all the living rooms, each one with individual design and proportions, and in addition to these there is a beautiful Russian stove of tile in the breakfast room, and another built in the wall between the kitchen dining-room and the sewing room. The breakfast-room stove is shown in one of the illustrations. The door shown at the end of the stove opens the end of the flue which folds in the manner of a steam or hot-water radiator. A wood fire is built inside the flue near the door and kept burning actively till the stove becomes heated; the flue is then closed at the mouth of the chimney; the stove retains its heat for hours and as it radiates from a large area it provides economical heat. The stove in the kitchen dining-room and sewing-room wall is operated in the same way as the other. The wall is extra thick with the flue built in the cen-



AMONG THE ROOFS.

A curious concrete gutter designed to throw the rain water, through a drain, to the terrace, and away from a door below.



THE SALON, SHOWING GALLERY STAIRS AND
DOOR TO HALL.

This is the largest room. The ceiling is supported by a
number of tall pillars, varying in diameter like tree-trunks.

ter; the stove heats the entire wall. Both rooms have the stove-wall covered with tile. The stove door is in the doorway connecting the rooms.

The fuel for the fireplaces and stoves is cut from the woods which are on Mr. Mercer's property, and faggots are piled in convenient places throughout the house. This inspires the gushing lady, who has been awarded the palm for foolish remarks regarding the house, to applaud Mr. Mercer for using the picturesque "Italian faggots."

The sixty-five rooms include ten bathrooms equipped with modern plumbing, to the disappointment of occasional over-sentimental visitors, and seven extra large bedrooms with modern brass beds. No two of these rooms are in the least similar in design. The East Room has one of the most irregular vaults in the house. There are also nine chambers, seven kitchen bedrooms, and three roof-rooms, included in the total.

The "Wind Room" near the top of the tower is untiled and stands just as it

came from the mounds. It has a groined vaulted ceiling with corbels modelled to represent the heads of the Winds from Virgil. Another interesting room in the tower contains the water-tank, which is built in the floor, having the appearance of a pool in a grotto. The concrete was successfully treated to prevent leakage.

Tiles have been Mr. Mercer's study for years, and their use in the building displays a great variety of kind and arrangement. The key-note of the work is Spanish, but in some of the rooms, pictures composed of silhouetted tile possess the quaintness and oddity of German decoration.

The tile-work in the "Columbus Room" is extremely elaborate; its color harmony and balance of design make it much more than a mere novelty. How Columbus sailed from Spain and discovered America is conveyed by pictures and lettering in the form of mosaics on both floor and ceiling, the silhouetting of the tiles—letting the concrete separate each tile—permitted the fitting of the pictures



THE WEST SIDE—RESIDENCE OF H. C. MERCER, ESQ.—DOYLESTOWN, PA.

"Here is a 'personal' architecture—a building which will stand ever as a monument to the individual tastes and beliefs of its builder."

to the various shapes. The relief of the tiles varies, the sails of the ships and the waves having a realistic high relief.

Other rooms, such as the Smoking Room, Morning, East and West Rooms, and the Alcove have appropriate decoration. The tile-decoration of the Bay Room vault illustrates Mexican themes, Mosaics of fish, sea-monsters and ships give the "Green Room" its title. Mottoes in tile decorate the fireplaces.

An old stone farmhouse built in the year 1742 stands encased in the building, and the "Forty-Two Room" is its commemoration.

Mr. Mercer has collected antiques of many kinds, and his house is full of objects interesting for their beauty, oddity and historic significance; antique chairs, old engravings, and frames either old or of old design, time-worn chests, antique stove-plates, andirons, cooking utensils, old locks, and many such things add to the fascination of the house. But the house does not depend on remarkable



A CORNER IN THE LIBRARY.
Concrete and tile are virtually the sole materials used in the house.

furniture for its beauty. The variety of tone in the concrete walls, secured by the use of different sands, and the rich color of the tiles, give the whole interior a harmonious warmth.

The roof with all its peculiarities has no unnecessary features. Heavy cornices were avoided and no gutters applied to the roof, with the exception of one or two places where the drain happened over the doorways below. The seven roof terraces are all fairly large, the west terrace being reached by a lift

and intended for use as an eating place during the summer.

The unusual character of his house does not interest Mr. Mercer. He simply devoted considerable time and money to the making of a house to meet his own desire and fancy, even if he sees in it nothing more than the house of his dreams, still he has erected a monument to certain saliently sincere architectural ideals, which may grow to find a wide and significant acceptance.



WHAT DO WE KNOW ABOUT LIGHTING

A STUDY THEORETICAL, SCIENTIFIC & PRACTICAL
By F. LAURENT GODINEZ, CONSULTING LIGHTING SPECIALIST

INTRODUCTORY NOTE

Paradoxical as it may seem, the phrase: "In the midst of light we are in darkness" is quite apropos of present day lighting conditions. Light, has in truth become a big little detail of the architect's innumerable responsibilities. Through the untiring efforts of Science, modern illuminants have been developed to a remarkable degree of economy. But this development has been *a posteriori*—in that, the important architectural value of *effect* has been utterly disregarded for the relatively unimportant "engineering" consideration of *cause*.

The architect has been surfeited with opinionated suggestions. He requires *facts* which, by virtue of their originality, logic, practical expression, and æsthetic value, will assist his associates in the detail work of lighting, for which, on completion, *he* must stand sponsor.

Artistic perception, the highest order of inventive ingenuity, a profound knowledge of lighting technique, a wide, practical experience in all lighting applications, a mastery of the chemistry of glass manufacture, originality of expression, the ability to design equipment, and a profound reverence for art, are the vital qualifications demanded, and these qualities are possessed to a remarkable degree by Mr. F. Laurent Godinez, who has written for our readers, an analysis of present day lighting.

In this article he defines the status of present day lighting, not from one but many points of view. The correlations which do, but should not, exist are interestingly described, and throughout the position of the architect is significantly portrayed.

Giving invariably the *raison d'être* for every motive, and quoting other irrefutable authorities, Mr. Godinez makes his explanations clear, concise, and free from the ponderous technicalities of the book taught theorist, whose efforts are characterized so fittingly by Pope in his "Essay on Criticism":

"The bookfull blockhead ignorantly read

With loads of learned lumber in his head"

Mr. Godinez will present valuable information of strong appeal to the architect, and convey many original suggestions. From these facts, the architect's associates will be enabled to readily appraise the intrinsic value of all lighting equipment and, furthermore to prepare definite specifications.

Glass makers, fixture manufacturers, and Lighting Companies' representatives will also find these articles replete with original suggestion and expressive of appreciation for their position. All criticism will be found exceptionally constructive, and militant only against those who are laboring under the delusion that any one stereotyped form of lighting equipment can exclusively meet the highly diversified architectural requirements of modern lighting.

GENERAL CONSIDERATIONS

"To build,—literally, to confirm—is by common understanding to put together and adjust the several parts."

Of all "builders" there is none so overwhelmed with the consideration of innumerable "parts" or *detail*, as the architect. He is the greatest professional executive.

Lighting is one of these many details requiring his attention—more urgently now than ever before. The enormously increased use of artificial light, and the several unreconciled factors involved by its commercial affiliations, have given rise to many grave relations demanding recognition and correction.

As the most important element influencing civic development, and inspiring a better appreciation, or aesthetic environment, the architectural profession is unquestionably the one to effect this correction.

Since the beginning, light in all its applications has exerted a tremendous influence on the welfare and progress of civilization. In building a structure, or in formulating an analysis, it is in truth "the adjustment of the various parts" which enables one to arrive at a "common understanding."

Let us begin by appraising the work of the illuminant manufacturers, and noting the influence of their efforts from various viewpoints. It is an interesting fact that despite the profuse publicity associated with the development of electric illuminants (which would seemingly indicate their supremacy over all other types) that every known light source, from the candle and oil lamp of prehistoric origin to the modern gas and electric source of today have each found a well defined sphere of usefulness with the increased demand for artificial light. Of this we may be certain, no *one* illuminant is to displace all others, but, within the limits of this preliminary analysis, we are most concerned with those restrictions which are ger-



mane with reference to the gas mantle and the tungsten lamp.

Evolved by ceaseless experiments, from the early efforts of Mr. Edison, this tungsten lamp has done much to place electric light within the means of the middle classes. As a competitive illuminant, gas has by no means suffered, and the pioneer work of Dr. Carl Auer Von Welsbach, which by the invention of the incandescent gas mantle revolutionized the gas industry, has given to the world gas illuminants of great adaptability, equalling, at least, the tung-

sten lamp, in quantity and quality of light. It is unfortunate that this attainment of economy in illuminants should be accompanied by a dangerous brilliancy of source, and the eyesight of a nation has suffered greatly.

Since the days of the candle the source of brightness of our illuminants has alarmingly increased. It has passed the danger mark, but the saturation point is not yet in sight. If values from 0.1 to 5. candle power per square inch constitute the safe range of brightness for the human eye, glance at the following tabulation and cease to marvel at the oculist's prosperity:

Source of Light.	Intrinsic brilliancy candle power per sq. in.
Candle	3.-4.
Oil lamp	3.-8.
Gas flame	3.-8.
Carbon filament electric lamp..	375.
Welsbach gas mantle.....	20.50
Tungsten lamp	1000.

Dr. George M. Gould, in Vol. I. of his "Biographical Clinics" in the chapter on the Physiology of Vision, forcibly denounces the prevailing use of high brilliancy illuminants, as follows:

"Another corollary of the law of ocular tire and resensitization may be noticed in passing—a law that is outraged by the lighting of most of our

churches and of all of our private houses, theatres, public halls, etc. The millions of dollars spent each year in illumination are in great part wasted and misspent, and by the methods used all the harm is done to the eye that is possible."

"American oculists have so many patients who, even with the best spectacles, cannot escape suffering whenever they go to the theatre, opera, etc., that the term 'theatre-headache' or 'panorama-headache' has come into general use. As much as to the character of the sermon or of the worshipper, the famous sleepiness of the churchgoer was due to the somnolence caused by ocular fatigue from harsh lights in front. One of the most common symptoms of eyestrain known to all oculists is sleepiness when reading by artificial light. Part of this is certainly due to the unphysiologic systems and qualities of the light used."

Dr. Gould's views are of interest to the architect because no system of lighting that is annoying to the eye, and dangerous physiologically, can ever be termed artistic, in any sense of the word. In any interior, regardless of its pictorial beauty, if glaring light sources blind the eyes of the observer, its aesthetic appeal and architectural expression is destroyed.

Dr. Ellice M. Alger, another eminent authority, states:

"The general engineering expression seems to be that the room which is best lighted is most lighted. This is a great mistake. Too intense light decomposes the visual purple in the retina faster than it can be replaced, and leaves a condition of retinal exhaustion. Likewise it compels a constant extreme muscular contraction of the pupil in the effort to exclude the light, which is both fatiguing and painful. Most of our buildings are glaring examples of extravagant and visual inefficient lighting—extravagant because of the waste of light, and inefficient because they are *not even comfortable* to sit in."

It is an incontestable fact that illuminants of high intrinsic brilliancy are physically dangerous to the human eye, when used without knowledge of this

danger, yet the public has been without proper warning.

The Illuminating Engineering Society has been in existence six years—yet it has only just issued a booklet containing advice on lighting matters, which is carefully worded to avoid meeting the real issue squarely.

This suppression of vitally important information has resulted in the following relations:

First. Those responsible to the architect for the petty detail of his lighting work, have unconsciously designed lighting which is injurious to the eye, and offensive as a distractive factor to architectural expression, owing to the circulation of misleading data on illuminants of high intrinsic brilliancy, which contain but little warning admonition as to the injurious effects of glare, so vigorously emphasized by Drs. Gould and Alger.

Second. The lighting of all public buildings is in some way associated with the architect. He may personally indicate the character of lighting, or leave that detail in the hands of his associates, or the consulting engineer, or fixture manufacturer. But, should he desire to exercise his authority,—the lighting would have to be modified in absolute accordance with his views.

These relations are of grave import because of the universal influence of such lighting upon the general public. Thousands of people are suffering today from the miseries of eye strain caused by the improper lighting of office buildings. Perhaps the architect is not directly responsible for these conditions, but at any rate he has the power to correct them, providing those responsible to him in turn are given facts—not misrepresentations—to assist—not to hinder—them in their work, and these shall be forthcoming.

In the case of the tungsten lamp, where discussions of its properties have been presented, one may search for a reference to other than the *economical* and *utilitarian* value of this product, but one will search in vain.

We are told of the "greater quan-

tity" at lower cost, but no word of warning as to the prevention of eye strain. As regards "quality" we are advised that the harsh "white" light which assists industrial occupation in revealing approximately the true color value of fabrics,—is equally acceptable in the home! There it serves as a perpetual reminder of vulgar commercial lighting, destroying pictorial environment and eliminating all suggestion of repose.

While those who uphold this over-brilliant illuminant would seem to have quite failed to comprehend that a "white" light is not what is required in the home, and that purity of color value must be subordinated in the attainment of atmosphere, this criticism in fairness is not intended to apply to manufacturers of gas illuminants, who have recognized with praiseworthy intelligence the unsuitability of white light for the home, and have supplied for some time an amber light incandescent gas mantle, which suggests the restful pleasing effect of the oil lamp. This continual reiteration of the economical aspect of illuminants, has, as might be expected, cheapened light in the estimation of the general public.

It is not that I desire to belittle the work of the illuminant manufacturer in thus abruptly directing attention to his shortcoming, for he has given us a medium capable of considerable assistance to architectural expression—if adroitly used. That he has retarded his own, as well as the community's progress, by the eternal blazon of *cause before effect*, cannot be denied by any person qualified to discuss lighting, from other than the crude utilitarian viewpoint.

If, instead of simply advertising a bulb, new and attractive lighting effects were portrayed, the demand for his products would be stimulated immensurably. The lighting companies have also suffered by allowing light to become thus cheapened,—and their consumers, saturated with the "economic" doctrine,—like Oliver Twist, continually ask—or demand more. Expansion, like that of any private corporation, depends on the consumer's sat-

isfaction. But as long as this is measured by the quantitative and economic argument alone,—we may expect a continuance of the ugly, commonplace lighting which is so prevalent and offensive. And now, a word as to lighting glassware, for globes, shades and reflectors influence so greatly the character of general lighting, which is so important because of the great educational influence which that lighting exercises over the general public. Here, it is not alone the lamp but oftentimes its accessory, in the form of glass and metal, which gives offence or pleasure to the eye. Unfortunately the architect has been unable to give the attention to this detail which would insure a grateful relief from prevailing abuses. The unfortunate thing about such lighting is its utter ugliness, monotony, and lack of attraction.

No one kind of illuminating glassware can be considered as an universal panacea for all lighting ills.

The whole propaganda of the "illuminating engineer" was reared with care. Based fundamentally on the "photometric curve," indicating the distribution of light about a lamp. This laboratory test was used as a basis in deriving a universal formula by which "all lighting problems might be solved." That the pressure of gas, or electricity, in practice, varies, that dirt on glassware absorbs light—these facts and factors of depreciation were ignored, and one was led to believe that the calculated foot-candle intensity of an interior might be permanent for all time, whereas, after 500 hours' use the depreciation would be apparent. Afterwards the user, enraged by the gloomy aspect of his premises, would denounce those who are invariably blamed for any inefficiency of illuminating equipment—the lighting company. Hence these brief historical allusions are not without a touch of the grotesque,—withal instructive. As we progress, the architect's aversion for the "illuminating engineer" becomes more apparent—and *avec raison*.

Imagine the absurdity of two competing "illuminating engineer" salesmen

wrangling garrulously over invisible differences of light intensity on an imaginary plane, while their prospective victim, is regaled by high sounding technical terms until goaded to desperation by "lumens," "fluxes" and other such utterances, he ends the controversy by purchasing a product which is ugly and exactly typical of the commonplace. The "illuminating engineer" state grandiloquently: "The merchant knows nothing of art." True, perhaps, but he *does* know that attraction means advertising value, but no one tells him how to make his lighting attract.

Advertising value is that which attracts attention. But to attract, a thing must be *different*. The commonplace never attracts,—and anything which is ugly, monotonous and predominating, becomes commonplace.

The lighting of the store display window is important, because of its universal effect. If it is good, attractive, and in accord with architectural sentiment—its effect,—in subconsciously influencing thousands of minds—will be good. If it is commonplace, ugly and opposed to architectural ideas,—its effect will be bad.

The result of the "illuminating engineer's" "scientific" lighting is apparent wherever one may look. This condition is the more unfortunate because it is entirely unnecessary. With the remarkable flexibility of modern illuminants, it is possible to design effective, artistic lighting effects, which will be expressive of character and productive of advertising value, because of their *difference* and *attraction*. But these suggestions will never be forthcoming from the vast majority of "illuminating engineers" first,—because they are obliged to recommend stereotyped equipment, and second, because they have become so imbued with the "utilitarian-economic" dogma, that they are entirely lacking in imagination and breadth of perspective.

Mr. H. C. Clifford, Editor of the *Up-holsterer*, a journal devoted to the work of decorators, states:

"The illuminating engineers are so obsessed by efficiency that they lose all sight of Character in Lighting. Occa-

sionally, some man like Bassett Jones, Jr. (an offender in name only) talks to them good sound sense, but he talks over their heads. The term "Efficiency" is meaningless, because it may mean the kind of work which gives the maximum energy at the minimum of cost, or it may mean the maximum profit at the least expenditure. It is all according to one's viewpoint, but to the decorator efficiency means the maximum of effect,—*independent of cost*. Illumination from the engineer's standpoint means a flood of light, a searching exposure of cracks and crevices, the annihilation of shadows and the obliteration of contrast."

Mr. Clifford's remarks show the decorator's views, and one might infer many years will pass before those prejudiced by narrow technical training, or restrained by commercialism, will learn to approach the architect without giving offense. In fairness, it must be said that there are one or two men, representing manufacturing interests, who have at least deplored these conditions beyond their control.

As early as 1910 Mr. W. D. A. Ryan, illuminating engineer of the General Electric Company, in discussing a paper by Mr. Clifford, presented before the Illuminating Engineering Society, said:

"Referring to the paper of Mr. Clifford, I desire to state it is papers of this kind that will do the Society as much good as any papers that can be printed."

Reverting to the architect's early opinion of the illuminating engineer, now greatly intensified, Mr. Ryan continues:

"Now there is no question but that extremely brilliant illuminants and well diffused illuminants have certain applications when they can be used to advantage, but unfortunately they are pushed to such a degree for general lighting, that many architects and decorators, particularly in the western part of the country, are beginning to think the illuminating engineer is a joke."

Quoting the Editor of the "Illuminating Engineer" of October, 1911, under the subject of "Analysis of Membership," he remarks:

"There is a statement in scripture to the effect that 'where man's treasure is,

there will his heart be also,' which is as true today as the day it was written. Now, there are a large number of men whose treasure is derived from the sale of illuminants, and the apparatus for converting them into light and illumination. Their interest in the Society is therefore a thoroughly practical one. That they have recognized this is very clearly shown in the statistics of membership. Thus out of a total membership of 1,53—, 1,231, or 82%, are directly concerned in the manufacture or sale of luminants and lighting apparatus. Of those who openly claim the title of illuminating engineer there are but four, or three tenths of one per cent., while of those making the more general title of consulting engineer there are 47, or 3 per cent. In the personnel of its membership, therefore, the Illuminating Engineering Society is commercial by a large majority.

"The analysis of the membership of the Illuminating Engineer Society shows the Society to be constituted in general as follows:

(1) A small number, not exceeding 10% of technically trained men who are professionally engaged in some of the scientific phases of the general subject of illuminating engineering. Among these is the single handful of practicing illuminating engineers, the balance being teachers or investigators.

"(2) Another small minority—perhaps 10%—who are endeavoring to qualify themselves for the profession of illuminating engineering, or to sufficiently familiarize themselves with its principles to assist them in their regular work.

"(3) The majority, 75 or 80%, who are interested in the work of the Society chiefly as a means of general publicity, tending to further their financial interests, and who are therefore willing to contribute annually to its financial support.

From the general accuracy of these conclusions there is no escape."

There is very little to be added to this comprehensive statement, save that it does not properly bring out the fact that the "few technically educated men"

alluded to in paragraph No. 1, are earnest scientific workers, who will not permit their affiliations to distort fact.

It is unfortunate that the so-called "commercial engineers" have not followed this example. Among the glass, fixture, and illuminant manufacturers in this country, there are many whose product has been intelligently shaped to meet modern requirement. These manufacturers are working out their destiny in a quiet but praiseworthy manner. The Society which we have mentioned, when issuing pamphlets, for public instruction, should unhesitatingly praise or denounce what is good or bad from the "illuminating engineer's" viewpoint. Again, a manufacturer whose product is physiologically bad should not be granted immunity from censure because he is a financial prop. Nor should imitators, offering miserable, inferior equipment, be allowed to malign a meritorious competitor.

This whole jumbled relationship has affected the architect, through his associates, responsible for the detail work of lighting.

Some manufacturers, with the best of intent make the most ridiculous claims for their products. Others, maliciously do the same. In a series of dictograph interviews with manufacturers salesmen arranged, with the object of determining their methods, imitators of original indirect lighting equipment allowed a representative (their "illuminating engineer") to make the following misstatement:

Q. Why is this bowl better than a silver mirror type?

A. The direct rays when striking the ceiling are reflected downward in the usual manner. When the diffused light leaves the bowl in the direction of the ceiling, it *strikes* the downward bound unbroken rays and is diverted downward by them.

Q. You mean turns them aside?

A. Yes. That is the unbroken reflected rays from the ceiling turn the diffused, or broken rays, from their course, and carry them down into the room by virtue of the fact unbroken rays are stronger than diffused light.

This interview, one of many caught by the dictagraph, is instructive, also amusing.

The damage in this sort of thing is that busy men, like the architects' designers, have no time to analyze technicalities—they are inclined and often, owing to pressure of other details, obliged, to accept surface indications. Thus many statements have passed without challenge. Certainly a representative in a purely commercial sense could hardly expect (though many do) to be received as an unprejudiced expert on

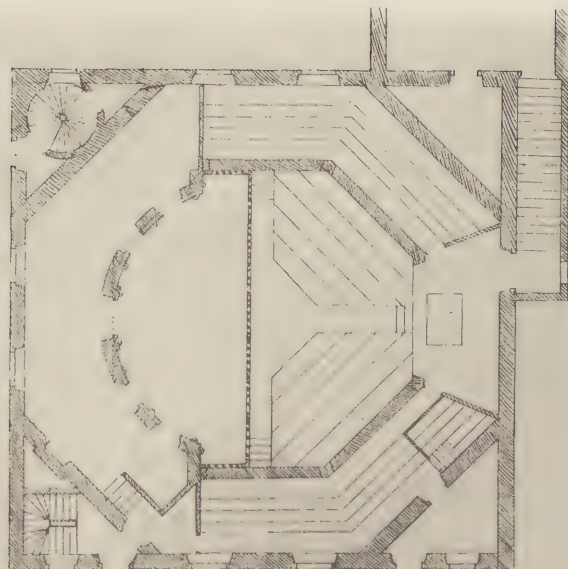
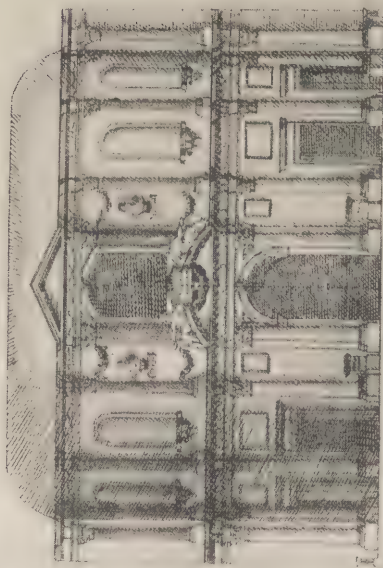
the wide field of lighting in general. One learns daily to weigh the prophetic words of the immortal Bard:

"Light, seeking light, doth light of light beguile."

It is not possible in one treatment of so involved a subject, to go further than indicate conditions, which will, of their own accord prompt one along lines of corroborative inquiry.

Nor is it possible in one, or even a series of articles, to do more than indicate the action which would be taken in relieving lighting monotony.





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Provost and Fellows of
Worcester College, Oxford.

A PLAN BY INIGO JONES. THE OCTAGONAL PLAN
WAS CUSTOMARY IN PUBLIC THEATRES. THE
SCENE PERMANENT, AS IN A CLASSIC THEATRE.



THE THEATRO OLYMPICO, AT VICENZA.
Andrea Palladio, Architect.

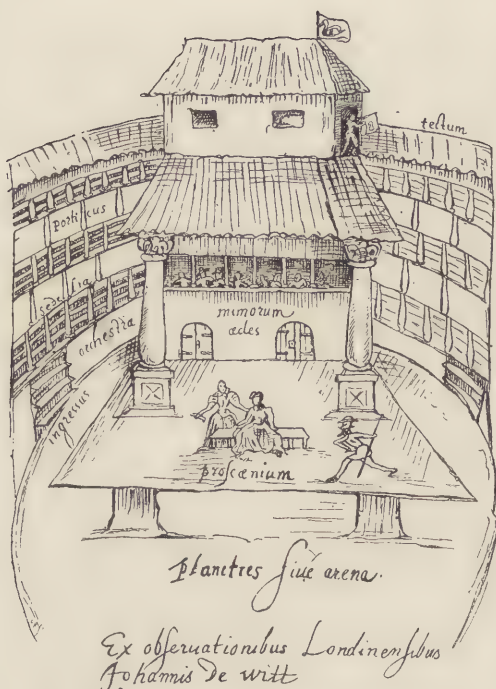
CONTRIBUTIONS TO THE HISTORY OF THE ENGLISH PLAYHOUSE

BY HAMILTON BELL

I. ON A PLAN BY INIGO JONES

TO-DAY WHEN so much labor and erudition is being spent, with such amazing results on the study of the places and conditions under which the works of the great Elizabethan dramatists and of Shakespeare in particular first saw the light, it may not be unprofitable to glance at the steps whereby these places and conditions became those under which we see these masterpieces to-day. This has not yet been adequately done; although Mr. Robert W. Lowe in his life of Thomas Betterton, that great tragedian who bridged the gap between

Shakespeare's day and the modern drama, has given us a brilliant sketch of a Restoration playhouse, somewhat too generalized for the use of the student, but founded on such a solid basis of fact that despite its picturesque presentment it amply deserves the serious consideration bestowed on it by such a ripe scholar and profound authority as Mr. W. J. Lawrence. He, too, in his last published volume, "The Elizabethan Playhouse and Other Studies," has elucidated sundry dubious points and illuminated many dark corners and

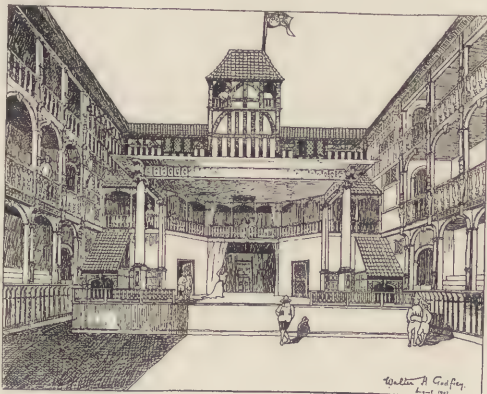


stumbling blocks in the path of the student who would trace the steps alluded to in my opening paragraph.

The present writer does not claim to be more than the most modest of these students, but in the pursuit of light on the subject, in England last year, came across one or two landmarks which it seemed to him others better equipped than he might utilize to their full value, and be interested to hear of. At Worcester College, Oxford, in the wonderful old Jacobean or rather Carolan Library, among the famous collection of drawings by the father of English Architecture, Inigo Jones, is one so curious and so important to the study of the development of the English Playhouse from the Elizabethan to the modern type that it would hardly seem an exaggeration to call it the missing link of the science.

It represents within a square building, windowed on three sides and on one seemingly attached to another building, an auditorium occupying five sides of an octagon, on the floor of which are shown the benches of a pit, or the steps,

five in number, on which they could be set. These are curiously arranged at an angle of 45 degrees on either side of a central aisle so that the spectators occupying them could never have directly faced the stage. Surrounding this pit on five sides is a balcony ten feet deep, with, it would seem, two rows of benches on four of its sides; the fifth side in the centre, directly opposite the stage being partitioned off into a room or box, in the middle of which is indicated a platform about five feet by seven, presumably for the Royal State. Three steps descend from this box to the centre aisle of the pit. To the left of and behind this royal box appears another enclosure or box, partitioned off from the rest of the balcony. This whole arrangement recalls and is explained by some plans of Inigo's in the Lansdowne M.S. 1117 in the British Museum, showing the temporary arrangements contrived in the halls of various royal palaces or noble houses for the presentation of masques, or less frequently, plays before the Court. Here we find always a separate platform in the midst of the raised ranks of seats for the Kings "State," and sections of these partitioned off into boxes for privileged nobles and the Ambassadors of other monarchs, at the Court of St. James. On some of the drawings the names of these favored ones are recorded; "The Countesse of Arundel's box," "The Lady Marquise her box." It would be an amusing pastime to investigate



THE STAGE OF THE FORTUNE THEATRE.



"THE BANKSIDE," SOUTHWARK, IN SHAKESPEARE'S DAY, SHOWING THE SWAN THEATRE
From "Visscher's View of London," executed in 1616.

these noble ladies who had such a pull at the Court of Charles I as to have their private boxes reserved for them and so inscribed on the plan of the court architect for their "advance booking." M. Reyher, in his amazingly learned and exhaustive treatise on "*Les Masques Anglais*," gives us an entertaining account, derived from the diplomatic correspondence of the Venetian Ambassador, of the squabbles between the representatives of foreign powers, in especial of Spain, France and Venice, for precedence at these functions, as indicated by the position of their respective boxes to right or left of the King's

and a trifle nearer to the stage the one than the other.

If I remember rightly, the wily Italian triumphantly reports to the Doge and Senate his final "score off" the no less arrogant but seemingly less astute Spaniard, in securing the more highly esteemed position for the Embassy of Venice.

The staircase of access to this auditorium are clearly indicated; one small door at the rear of the *salle* with its own private stairway, communicating with the adjoining building, opens directly into the royal box; as in the Royal Opera House in Berlin to-day.



"THE BANKSIDE," SOUTHWARK, IN SHAKESPEARE'S DAY, SHOWING THE GLOBE THEATRE.
From "Visscher's View of London," executed in 1616.

There is another door, with a triangular lobby, into the rear of the left-hand balcony. Two windows are shown on each side of the house, opening directly into the theatre from the outer air.

The stage runs clear across the width of the pit, about thirty-five feet, projecting in an "apron" or *avant scène* five feet beyond the proscenium wall and is surrounded on the three outward sides by a low railing of classic design about eighteen inches in height, just as in many Elizabethan Playhouses.

If one may trust an elevation of the stage, drawn on the same sheet to twice the scale of the general plan, the stage was four feet six inches above the floor of the pit. This elevation exhibits the surprising feature of a classic facade, Palladian in treatment, on the stage of what so far we have regarded as a late modification of a playhouse of Shakespeare's day. Evidently Inigo Jones contemplated the erection of a permanent architectural *proscenium*, as the ancients called it, of the type, though far more modest, both in scale and ornamentation, of Palladio's *Theatro Olimpico* at Vicenza, which we know he visited in about 1600, some twenty years after its erection. This *proscenium*, given in plan and elevation shows a semi-circular structure with a radius of fifteen feet, two stories in height, of the Corinthian or Composite order. In the lower story are five doorways, the centre of which is a large archway flanked by pedestals, on which are inscribed in Greek characters, Melpomene—Thalia; over these and over the smaller doors are tablets.

The second story contains between its lighter engaged columns, over the four side doors, niches with corbels below, destined to carry statues as their inscribed bases indicate. So far as these inscriptions are legible,—the clearest reading "phocles," probably Sophocles, these were to represent Greek dramatists, most likely Alschylus, Euripides, Sophocles and Aristophanes.

The curved pediment of the central archway runs up into this story and is broken in the middle by a tablet bearing the inscription "Prodesse et Delec-

tare," which is flanked by two reclining genii holding garlands.

Above these are two busts on brackets, Thespis and Epicurus, or possibly Epicharnos. The space directly above this pediment is occupied by a window-like opening five by four feet, the traditional Elizabethan music room in all probability which Mr. W. J. Lawrence has shown us occupied this position both in Shakespeare's day and for some time after the Restoration; an arrangement which was revived by Mr. Steele Mac-kaye in the Madison Square Theatre and originally in the first little Lyceum, New York; both now pulled down. The pyramidal pediment above this opening projects above the upper cornice into a coved ceiling, which would appear from the rendering of the drawing to form an apse above the semicircular stage. Behind the *proscenium* is a large space with staircases of approach, two windows at the rear and apparently a fireplace for the comfort of the waiting players. Communication with the front of the house is provided by a door in the proscenium wall opening into the stage door lobby, whence the outside of the building may be reached.

There is no indication of galleries, unless some marks on the angles of the front wall of the balcony may be interpreted without too much license into the footings of piers or posts to carry one; the total interior height shown in the elevation from what I have assumed to be the floor of the pit to the ceiling being only twenty-eight feet there would hardly have been room for more than one. The only staircases which could have served it are at the rear of the building in the corners behind the stage wall.

The total effect of this little auditorium would have been not unlike that of Saunders Theatre in Harvard University. It is obvious that with all his desire to reconstruct a classic theatre in the manner understood in the Italy of his day, Inigo Jones could not for some reason, to which we have at the moment no clue, break loose from the traditional English arrangement of that

part of the theatre destined for spectators.

The general dimensions would appear to be:

Total width of the auditorium .. 58 ft.

Total width of the pit 36 ft.

Total width of the front stage or "apron" 35 ft.

Total depth of the stage from the railing to the centre of the *proscenium* 16 ft.

The entire building is 58 feet square inside, cut to an octagon of 28 feet each side.

Height from floor to ceiling 28 ft.

Height from stage to ceiling
about 23 ft. 6 in.

The lower order of the *proscenium* 10 ft. 6 in.

The upper order of the *proscenium* 9 ft. 6 in.

The scale on the drawing may not be absolutely correct, as measured by it the side doors of the *proscenium* are only five feet high and two feet nine inches wide; this, however, may be an error in the drawing, since we have it on very good authority that Inigo Jones designed without the use of a scale, proportioning his various members by his exquisitely critical eye alone, subsequently adding the dimensions in writing.

We have still no clue as to what purpose this curiously anomalous and most interesting structure was to serve. Whether the plan was ever carried out,

or whether it remained part of a lordly pleasure house which its prolific designer planned for the delectation of his own soul, or like those glorious plans of his, destined alas never to come to execution which are in the same collection at Worcester College, those for the palace at Whitehall which if it had ever been built would as we may judge from the one fragment that was, the Banqueting House, have been surely the most splendid royal residence in the world.

Mayhap this plan embodied some fantasy of a royal Stuart for a playhouse attached to an existing palace, since we know that Inigo Jones at the command of Charles I built a New Masking House, a huge structure,* built of timber on a brick foundation, destined to replace the inconvenient Great Hall of Tudor times, and save Rubens' ceiling decoration in Jones' new Banqueting House from damage by the smoke of torches; or, more fascinating speculation still, is this possibly a scheme for the erection of a classic *proscenium* in an existing playhouse; in which case the plan may have preserved for us the dimensions and arrangement of an actual Elizabethan theatre, several of which are presumed to have been octagonal in plan. I fear this is too much to hope.

*Reyher gives the dimensions as 112 mètres by 57 mètres, but I think this must be a mistake, as a plan in The Lansdowne M.S. which I am disposed to believe is for a masque given in this room, measures 55 feet 9 inches.





From "English Homes—Early Renaissance."

THE HALL BAY, CHARTERHOUSE, LONDON.

THE ARCHITECT'S LIBRARY



It is the purpose of this department to keep the readers of the "Architectural Record" in touch with current publications dealing with architecture and the allied arts, describing not only literary, but practical values.

"English Homes—Early Renaissance."—Books purporting to deal with architecture are too often of a nature more literary than practical, by which statement, however, it is not intended to disparage the literary element in this type of book. The architect should not forget or neglect the scholarly side of his training, for he cannot interpret an historic style without a considerable knowledge of the times and circumstances contemporary with its development.

In spite of this, however, there is a constant demand for "practical" books, and by this designation it is intended to describe the type of book which furnishes actual and tangible working material in the draughting room rather than a general, critical or theoretical treatise for reading by the study fire-side.

The "practical" book, despite the real demand spoken of above, is rare in this country—this branch of the architect's library being supplied almost entirely by foreign publications. One requisite of the "practical" book is a large page-size which will admit of reproduction at such a scale that moldings and details of carving may be not only studied but actually transcribed, with whatever adaptations the work in hand may re-

quire. At first thought it might be supposed that books of line-drawings are the most valuable—especially measured drawings, yet this is not always the case. The line drawing, with or without scale or figures, is, after all, silent upon the most vital consideration of architecture—the *third dimension*. The detail in question, on the elevation, can be studied only in two dimensions—it is flat, and its appearance "in the round" must be a matter of conjecture.

This very important consideration in the study of detail is manifest in the illustration—"Detail of Carving on Porch, Kirby Hall" reproduced from "English Homes" in this review. It is also true in the "Bay-window, Trerice Manor House" from the same work, for the most faithful line-transcript imaginable, if it be confined to elevation, plan, section and profile leaves the *spirit* of the design to chance. A small photograph of an oriel window or a well-designed chimney may inspire us, but cannot aid us to detail it for execution. If the photograph, however, is sufficiently large, any draughtsman with a competent understanding of detail can make a working drawing accurate in all its technical points, but also with the *character*. Most architectural detail lacks this important quality, and suffers as well from the failure on the part of architect or draughtsman, or both to study it or to conceive it in three dimensions. Detail is not a matter of line, but of line, projection and shadow. And these essentials

of detail are better shown in a good photograph than in a line drawing, and better shown in this volume on "English Homes of the Early Renaissance" than in most books of this type we have seen.

Here are remarkable photographs,

mostly 8"x11" in size, of forty-three manor houses and country seats throughout England—buildings evidently selected for their excellence of design. The details show much stone-carving and brick-work, and in addition to the



From "English Homes—Early Renaissance."

BAY WINDOW, TRERICE MANOR, CORNWALL.

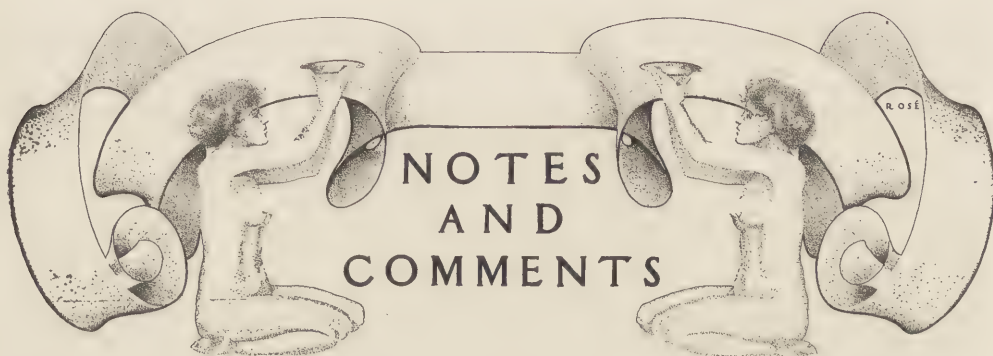


From "English Homes—Early Renaissance."

DETAIL OF CARVING ON PORCH, KIRBY HALL, NORTHAMPTONSHIRE, ENGLAND.

casement windows in mullions, of which many are illustrated, several have been photographed both from within and without. In these fine old interiors there are splendid figured plaster ceilings, walls of oak-panelling, with details of wood-carving on pilasters, balustrades, stairways and mantels.

For the architect the text is negligible, being primarily historical, but the illustrations speak for themselves of the abundant inspiration which is to be found for the designing and detailing of one of the most thoroughly satisfying types of English domestic architecture.



The Layout for the New Technology

The following notes on the study for the layout of the new Technology buildings, by Mr. Frank A. Bourne, are of more than usual interest:

"The site for the buildings of the Massachusetts Institute of Technology on the Cambridge side of the Charles River Basin near Harvard Bridge offers a rare architectural opportunity. No owner could study the problem of a proposed building in preparation for employing an architect with more conscientious and painstaking care than has been given by the corporation, faculty, alumni and students of the Institute. The corporation has employed an eminent engineer, Mr. J. R. Freeman, to collect data of existing institutions, and to put them in shape for the use of the architect and others in carrying out the work.

"The faculty have contributed sketches of their requirements, the alumni have for months made studies of the needs of student life in the new Technology center, and the students have been frequently called upon for suggestions and assistance.

"At the Technology reunion in New York, January 17th, the engineer's report and diagrams were made public. For nearly a year, graduates have been visiting institutions and preparing elaborate reports, so that the existing information in the hands of the Institute authorities is undoubtedly the most complete in existence for college building.

"The reports of which there are about 40, are a monumental task in themselves, and it is hoped that they can be kept up to date. They consist of typewritten sheets and photographs 8½-in. by 11-in., uniformly bound, and anyone seeking information on any kind of laboratory or other de-

tail, can readily find examples in the different volumes.

"In the faculty reports, one million square feet of floor space were asked for. Even this amount of floor space did not include estimates for long future growth or the addition of future courses. Just as different manufacturing institutions became interested in the Institute of Technology in the 60's and 70's, as was shown by their contributions to the frieze of the technical arts in the main lecture hall of the Institute, so it has been suggested that modern manufacturers requiring assistance in their work might develop new courses. The United States has already sent graduates of the Naval Academy to study naval architecture as post-graduate work in the Institute, and students frequently enter from architects' and engineers' offices.

The engineer's report includes a study of an architectural unit which would give the greatest economy of construction together with proper lighting, and not preventing, but working up to a good architectural exterior. There has been considerable valuable information obtained from methods of construction of factories in the last 20 years. It is probable that Portland cement concrete will be the principal building material.

"Mr. Freeman's suggestion in regard to the main building is that it should be a structure of four stories, each 16 feet high with a classical façade 800 feet long, arranged around 2 large courts. This would be about as high as Riverbank Court, with space left on both sides of the building for future development, and the dormitories and athletic field are placed to the rear near the railroad track.

"The heating system proposed is forced supply hot water; the air supply is arranged to go through hollow columns which may be decoratively treated on the

exterior, and the top story is covered by a saw tooth roof which has been found to give good light in factories here and abroad, and large open floor space. One of the great courts above mentioned is, it is suggested, to be arranged as a cloister. It would be advisable to have such a cloister open to the south, with an outlook over the Basin. The power plant is to be located in the center of the building with the idea of making it a fine, interesting, architectural feature, giving it the position it deserves in a technical institution.

"While these studies were being made by the engineer, a committee of alumni on the Walker Memorial, appointed by President Maclaurin and a committee on student housing, appointed by the Alumni Council were also studying the needs of future student life including the gymnasium and commons and discussing such needs as an infirmary and co-operative store.

"The Walker Memorial is intended to be a general social meeting place of the students, and is to be a center for all the students' activities. Here is the seat of student government and also a clubhouse where instructors, alumni and students can meet.

"While this will contain a small gymnasium, the committee feel that the gymnasium should be separate. The gymnasium has come to be regarded as an essential in the equipment of any educational institution. The purpose of the Walker Memorial in response to the often expressed opinion of General Walker in whose honor it is to be erected, is primarily to provide a student centre to fill the need that was particularly present when he was president of the Institute. It will be seen that his expression that the 'Institute is a place for men to work and not for boys to play' has not been forgotten, as the building will be primarily a centre for student activities and intended to fit the men for meeting other men so that they can better carry out the work of their own professions.

"All other buildings such as the gymnasium, dormitories and commons that can properly be taken care of by the corporation or by separate administration are kept outside, although accessible to the Walker Memorial Building.

"It is hoped that the nearness of the site to the Basin will encourage rowing, and that the lagoon proposed by Mr. Freeman for the Naval and Hydraulic Departments might be used in connection with the gymnasium. It is also desired to place the Memorial Building so that its main room will

in one direction, look out over the Basin, and in the other direction over the athletic field, which, it is to be remembered, can be kept in so presentable a condition that it will make a fine fore-court for the whole student quarter.

"The commons will contain a large dining room with many smaller dining rooms and lunch room with accommodations for students who bring their lunches from home, and a lunch counter for 'men who have to.'

"It is desirable to connect the commons with the student club house by a closed colonnade, so that students will pass easily from one building to the other, and a wide direct passage may connect all the dormitories through the basements.

"The system of dormitories is to provide staircases, with from 16 to 50 students on each stair case, and fraternities or clubs may arrange to fill any of these groups. By this it is hoped to make the dormitories seem more home-like and avoid the 'loneliness' of a great dormitory.

"It has not been decided whether or not dining accommodations or separate living rooms will be placed in the different sections. It is believed both by the fraternities and other students that the general good of the institution should be placed first, and it is the opinion of many that this will be better gained by having the living rooms concentrated in the Walker Memorial, and the dining rooms either as separate rooms or special club tables in the commons both for economy of kitchens and service and to get all the student body three times a day under one roof. At present there are about 1,600 students at the Institute, and 700 live at home. About a quarter of the remaining 900 live in fraternities. There are also about 100 instructors who should have separate stairways.

"For the gymnasium, a building covering about 45,000 square feet is suggested. The main floor to be of cinders and clay, with a cinder track 14 feet wide.

"Locker accommodations and shower baths should be on the ground floor, and take up about 1-3 of the space, and should be arranged to light the building, and as far as possible, in suitable weather, to throw open this whole section to the outer air.

"The main gymnasium would also have a suspended running track 12 feet or more above the floor. Rooms for the director, library, trophy room and check rooms would be provided.

"Close by will be the swimming pool, 30 by 75 feet, with depth of water $4\frac{1}{2}$ to 9 feet. The preliminary estimates on the pro-

posed building for the Walker Building, \$130,000 or more; for the student houses \$775,000, with a gymnasium and swimming pool \$300,000.

"It was announced at the Technology reunion in New York that the architect had not yet been selected. Among the many graduates of the Institute, there should surely be one man who would fittingly carry out the conditions, and it is likely that a builder of state houses and tall buildings may find this a still finer problem. Of one thing the architectural profession may rest assured that it is the desire of every one connected with the Institute of Technology to carry out the design properly, and make the new group on the north side of the Charles a worthy example of American architecture."

**The
Architect
for
Technology**

Immediately prior to going to press the following clipping from The Boston Journal was received:

The announcement of the architect of the new Technology by President Maclaurin as William Welles Bosworth, '89 of New York, was the central feature of the meeting last night of the council of the Alumni Association.

With Mr. Bosworth will be associated Professor James Knox Taylor, head of the department of architecture at the institute. Of the former, the Tech publicity department says:

"The question will at once be asked by those not well acquainted with New York, 'Who is Bosworth?' It is simply necessary to remind such questioners that only four years ago they were asking, 'Who is Maclaurin?'"

"No one needs to ask that today, and the institute has again shown its ability to seize upon the leaders of the immediate future. Bosworth is a product of the institute in whom those who are prophets in architecture find the fundamentals and the achievements that make him the coming man, with his shadow already across the threshold."

In announcing the appointment of Mr. Bosworth, President Maclaurin said that the institute has proceeded slowly with its plans for the new buildings across the Charles. With a considerable part of the money needed for its buildings in hand it might easily have moved more rapidly, but its responsible officers have not allowed

themselves to be forced by outside pressure to begin building until they are really ready to begin.

The president has indicated that for various reasons it would not be convenient for the institute to vacate its present buildings before 1915.

President Maclaurin in describing the splendid piece of work done by John R. Freeman of Providence, the engineer, took occasion to correct an impression that is prevalent, that the plans presented in New York are final.

In the enormous work Mr. Freeman found that the most expeditious way to present their features would be by pretty advanced sketches.

The information that Mr. Freeman has collected and digested will afford to the architects the opportunity to proceed rapidly with their important work. Besides this material formally collected, the institute can rely on a large body of alumni to bring their expert knowledge to the solution of special problems of construction and equipment. Here Dr. Maclaurin noted that it is of interest to know that most of the work thus far has been done with the assistance of alumni.

T. Coleman Du Pont, '84, gave half a million dollars for the purchase of the site, and thus initiated the whole forward movement. The matter of investigating the character of the soil underlying the buildings has been done with the co-operation of W. O. Crosby, '76, and J. W. Rollins, '78.

The collection of the material in the way of information and experience and suggestions is due to John R. Freeman, '76. The architect, William W. Bosworth, of the class of '89, and the consulting architect, Professor James Knox Taylor, of that of '79. Mr. Bosworth is not unknown to Bostonians, having resided in the city at the Ludlow for a number of years.

William Welles Bosworth, the man who has been selected, began his architectural training in the Massachusetts Institute of Technology, which he joined in 1886, being affiliated with the class of 1889. After leaving the institution he entered the office of H. H. Richardson, leaving it after eighteen months to become associated with Mr. Olmsted in landscape work for Leland Stanford University in California.

Later, for two years he was on the staff of the American Architect and has made extensive studies of European architecture, especially in Rome.

The most important work upon which Mr. Bosworth is now engaged is the head-

quarters for the Western Union Telegraph Company in New York. This is a thirty-story building at the corner of Broadway and Dey street, its material is white granite and its cost between five and six million dollars.

Professor James Knox Taylor, head of the department of architecture, was born in Knoxville and educated in the public schools of St. Paul. He is of the Institute, '79, was in business in New York for three years, in St. Paul for ten years and in Philadelphia for three years. He entered the service of the government in 1895, became principal draughtsman in 1897, was appointed supervising architect of the Treasury Department, which has been termed "the first position in the land." This he resigned less than a year ago to become director of the department at Tech.

The Boston Journal, Feb. 18, 1913.

A City Planning Congress

Preliminary notice has been sent out of the First Town Planning and Municipal Organization Congress, which is to be held some time in mid-Summer, on a date not yet definitely fixed, in connection with the exhibition at Ghent. Although the word "First" is used in the title, the notice states that it is designed in this Congress to continue and develop the work started in the Conference in London (1910), and in the Berlin and Düsseldorf Exhibitions. The tentative program proposes two general subjects. A, Town Extension; B, Preservation and Administration of Old Districts.

A. January issue, which is called the Christmas number of "The British Architect," is devoted to a plea for the comprehensive planning of London. Letters are printed from a large number of prominent British architects such as Adheads, Blomfield, Niven, Sir Gilbert Parker, Stokes, Unwin, Sir Aston Webb and various others, strongly urging this matter. Unwin likens London to an army "beset on all hands with harassing foes, but having no commander and no chief of staff to organize the defense." Special articles, and large plates illustrating schemes for the improvement of London, especially a grandiose project by D. Barclay Niven for the south side of the

To Replan London

Thames, are features of the number. Niven is chairman of the Executive Committee of The London Society, and many of the letters propose that The London Society be intrusted with the work of securing a comprehensive plan for greater London. These facts, added to the circumstance that about a week later The London Society held an impressive initial meeting at the Mansion House, seem not without significance. The London Society, of which the membership bristles with titles and with the names of well-known men as representatives of such leading organizations as The Royal Academy, the R. I. B. A., etc., has been organized "to draw together all lovers of London, whether their interest lies in preserving its old charms or in influencing new developments." Its aim is described as "to build up a strong public opinion and to provide a means by which Londoners can bring their influence to bear upon matters of artistic, antiquarian and practical interest." Perhaps the larger American cities remembering the success quickly attained by Les Amis de Paris, will do well to note the organization of this Society as a hint for themselves.

The 1912 Annual Report of the Massachusetts Civic League contains the following interesting arguments for a State housing law:

A State Housing Law

1. A local ordinance or by-law may be repealed at any time under pressure from powerful interests or as a result of the election of a reactionary government. A State law gives more stability as it may establish a minimum but leave it to municipalities to go higher if they desire.

2. A uniform law is of great value to architects and builders.

3. A uniform law will save a great deal of time and expense on the side of litigation. If every municipality has to test out its own peculiar laws before the courts, it will be burdensome work.

4. A uniform law will help to develop the profession of building inspector which is entirely wanting with us. It is a profession in other countries and should be so developed here.

5. A uniform law will help to bring indifferent places into line. If we were to wait entirely for local ordinances there are places which would have no laws for many years. Statute law will give progressive citizens an opportunity to secure action.



Photograph by R. B. Hindmarsh.

THE LINCOLN MEMORIAL, LINCOLN, NEBRASKA.
HENRY BACON, ARCHITECT.
DANIEL C. FRENCH, SCULPTOR.



Photograph by R. B. Hindmarsh.

THE LINCOLN MEMORIAL AT LINCOLN, NEBRASKA.
Henry Bacon, Architect; D. C. French, Sculptor.

Nebraska's Tribute to Lincoln

"Lincoln hesitated firmly and patiently."

Eloquent in its expression of such a quality of character is the bronze figure recently dedicated to the memory of the namesake of their capital city, by the citizens of Nebraska.

Placed upon the axis of the western entrance to the State House grounds and facing the setting sun, the monument occupies a rectangular, paved area, surrounded on three sides by a low parapet of gray granite and approached from the street by means of two low flights of steps. Upon the central section of the low wall rises a huge slab of the same material, upon the face of which is inscribed the Gettysburg address. The vertical edges of this slab are simply enriched by Roman fasces carved in low relief, while two broadly sculptured eagles with outspread wings serve as supporters. Standing upon a simple plinth, square-shouldered against his carved utterance, so that some of his words are entirely

hidden, is the bronze figure of the patriot president.

To many persons in the great throng that gathered to participate in the unveiling, there was, doubtless, a shock of disappointment as the national flags, which draped the figure, were drawn aside by two veterans of the Civil War.

This huge slab, massive almost to rudeness, this sombre, uncouth figure, represented as clad in ill-fitting garments, standing in an attitude of calm meditation, are so different from the popular conception of a monument to a nation's hero, that many have hesitated in their desire to express approbation.

But an esteem that slowly appreciates is often of lasting duration. I believe this will be the case with the new Lincoln memorial.

The broad, massive and austere setting seems to speak of the life, character and work of the man. On closer acquaintance with the bronze, one reads of the integrity, intellectuality, gentleness, humor and human sympathy that were mingled in this great American. The diffidence of the

bowed head and awkwardly-placed feet regains firmness in the finely modeled clasped hands. In profound calm and thoughtful confidence as of one who claims merit, not for himself but for his cause the figure is gracious in its awkwardness, and kindly in its simply modeled surfaces.

This fine work of Daniel Chester French and his associate, Henry Bacon, architect, is more than a memorial to a great man, it is a monument to the optimism of the West and is destined to become an American classic.

Railroad Terminals

While everybody is talking of railroad terminals, a long article by Franklin Clarkin, which is published in the Boston Transcript, contains, as an incident, some rapid here comment which is of interest for its brief and accurate characterization of well-known foreign terminals. Mr. Clarkin says "That Gothic pile of St. Pancras in London might be believed from its exterior to be some House of Parliament in the colonies. Liverpool street station handles 990 trains a day—the busiest railroad depot anywhere, but the new Grand Central will have a capacity of a train a minute, or 1,440. Gare St. Lazare in Paris was remarkable, you remember, and the newer Orleans, edging the Seine, not unfit to neighbor the Louvre. Dresden's was like an elaborate elevated stop with a graceful roof. Frankfort's was like an exposition structure, a tour de force, for temporary purposes, with a steel tent for trains. Genoa's suggested the gateway by naively combining the Arch of Constantine and the colonnade at St. Peter's, in pretty miniature. Leipzig's newest, not yet finished, has the outward primness of an institution, not to say a prison." He praises the "charm and smartness" of the new Grand Central in contrast with the foreign terminals, and he deprecates its comparison with the Pennsylvania station. The place of the latter, he says, "for dignity, for having the 'most monumental single room in the world,' for having been the first in this country to adopt the Continental system of different levels for different sorts of traffic, for being outwardly a tremendously impressive construction in the heroic Roman manner, is already secure." It is interesting, however, in this connection to observe that Hugher Elliott, lecturing in Boston a few

days later on "Everyday Art," severely criticised the Pennsylvania station. Its exterior, handsome though it is, he is quoted as saying, "suggests a gallery for Greek sculpture, not a terminal for trains. Even the magnificent 'main passenger concourse' has grave faults. At first sight, one is pleased with the beauty of this great hall, but when he considers its structure, he is ready to call it a monstrosity. At once he realizes that the vaulted ceiling, apparently supported by massive columns, would come down with a crash were it not for the hidden steel structure that really supports it. Columns are used in architecture to bear only a downward, vertical thrust. They could never support the outward, horizontal thrust which that vast ceiling would throw upon them. And so I say that the building is woefully illogical and cannot stand as an artistic masterpiece." He thought Boston's South station more successful architecturally as a portal to a city. His reference, however, could have been only to the exterior as to that effect.

Up-To-Date Old Salem

The City Plans Commission of Salem, Massachusetts, has just issued in pamphlet form its First Annual Report, copiously illustrated with photographs, and containing a large map and several plans. Salem is the first city in Massachusetts to appoint a permanent City Plans Commission. The report is modestly put forward, and strongly urges a municipal appropriation sufficient to enable the Commission to secure expert advice. Nevertheless, the Commissioners themselves make, after comprehensive study, many very interesting suggestions. These include, especially, a number of street extensions and widenings, Salem being known as a city without "a single tolerable exit or entrance." Other recommendations which are of particular interest, though more or less tentatively put forward, contemplate a connecting boulevard or "Ring Street," the creation of manufacturing, business and residence zones, the establishment of a Municipal Art Commission, the creation of an Essex County Plans Commission to consider the whole county, and finally the grouping of public buildings. The latter subject the Commission considers, it says, "worthy of a special report later, after more study is given it."

**Getting
Daylight
into a
Skyscraper**

An interesting development of the "skyscraper" is illustrated in the million and a half dollar twenty-story office building which will be erected along the line of the new subway on Broad street, in the heart of the financial district, just below the Stock Exchange, by the Fifty Broad Street Company.

This building will be located in a commanding position at the head of Broad street looking from Wall street, and with the two, two hundred and fifty foot high towers forming its principal facade, will have much the appearance of a great cathedral standing at the head of a vista. The building will extend through the block to New street and have two street courts similar to the scheme adapted in the modern apartment house. It will be a neighbor of the Johnston, Blair and Broad Exchange Buildings and will, by its plan, contain the equal of three street corners providing light for all offices throughout as though Exchange place passed through the centre of the property, with the added advantage that this central portion of the building gets the direct light from Broad and New streets, the street courts adopted being of the same width as Exchange place. There are no inside courts and every office overlooks the street getting an abundance of light. By means of bay windows on the Broad street court, most of the offices in the building have a direct view of Broad street which is one hundred feet wide. As the entire lighting comes from the streets no office can have its daylight affected by future building operations on the adjacent properties.

To intensify and reflect the light, the building will be of white mat glaze terra cotta, the base of stone and marble, side walls of light colored face brick.

The lighting of the large banking room on the street floor will be accomplished by seven large skylights located at the base of the street courts, throwing light into the central portions of the first story directly from the two streets.

A large rentable basement space will have entrance by an eight foot stairway directly from the street. A broad marble lined Arcade will extend from Broad street through to New street giving direct access to the present subway through No. 42 Broadway. From the arcade the elevators will carry the occupants to their offices at the rate of



OFFICE BUILDING AT 50 BROAD STREET,
NEW YORK CITY.

Willauer, Shape & Bready, Architects.

six hundred feet per minute. Structurally, the building will be erected on caisson foundations carried to rock, high class construction and finish throughout.

Commission of Fine Arts

The annual report of the federal Commission of Fine Arts, which was submitted to Congress on December 3d, and ordered printed, has been issued in an illustrated pamphlet as Senate document number 950. It appears that during the last fiscal year, forty-one matters were considered by the Commission. Of this number, thirty-seven involving an approximate expenditure of \$7,000,000, were disposed of. The subjects cover a wide variety, and while, for the most part, located in the District of Columbia, the Perry Memorial competition alone included more than two hundred drawings. The pamphlet contains the Commission's elaborate report on the Lincoln Memorial—now happily acted upon. Matters of general interest are, also, the Commission's recommendation of an 80-foot building height limit opposite the Bureau of Engraving and Printing, and of 90 feet adjacent to the new city Post Office, and its recommendation that a uniform architectural style be adopted and adhered to in the construction of school buildings, engine houses and similar public structures in the District of Columbia. It is the Commission's suggestion that the traditions and precedents of the colonial period—precedents which prevailed for some time after the establishment of the seat of government in Washington—afford a basis for a style sufficiently flexible to answer the needs of to-day, while at the same time giving that historic unity and continuity to be desired in a capital city.

On the Training of the Decorator

It is said that it is only through the perfect understanding of others and of their aims, ambitions and ideals that we can attain to any definite knowledge of ourselves, and that the world is enriched when the well-informed speaks because he must, while it is impoverished when any prattle simply because he may.

That an architect in general practice is willing to give himself to the thorough study and presentation of an academic subject in a popular manner is no small testimony to the sincerity of his broad interest. Mr. J. Monroe Hewlett spoke on the evening of February 15th, at the Architectural League on the importance of a closer

and broader attention to architectural decoration, displaying a singular earnestness and clarity of vision, evidently accepting by preference the idea of the Italian Renaissance, and assigning to the word "decorator" an importance which somewhat varies with the understanding of today. He said:

"Every architect, painter and sculptor must realize the gap that exists between his own training and that of the members of the other two crafts—a gap which cannot be bridged by good intentions or sincere effort . . . This middle ground of knowledge which, when it is bridged at all, is bridged only by a third personality or by unusual attainments on the part of one or the other of the collaborators includes all of that fluent familiarity with the decorative use of ornamental forms originally derived from nature, but modified and formalized throughout the centuries in such a way as to make their use possible in association with an endless variety of other forms so derived and so modified."

He defined decoration as the most comprehensive embodiment of the art of design, the unifying elements in the joint progress of architecture, painting and sculpture.

The following extracts are taken from Mr. Hewlett's lecture:

The most important work that can be undertaken by the artists of this country today is the initiation of an educational system, which in the application of aesthetic principles to structure, form and color shall emphasize once more the basic unity of these three branches of the single art of design. For this great trinity of art is a single art, just as literally as is music or literature, and it is only by means of a general acceptance of this fact that we can hope to find any definite and enduring aims and standards.

It is idle to expect that in this age of specialization the time will ever come when all three branches of the art will be harmoniously applied by a single individual as was done by some of the masters of the past, but the more specialized the practice of the individual is to be the more essential it is that his training shall be properly co-ordinated to the training of those with whom he is to collaborate.

It seems to me that there are evidences today of a more friendly relation and a more appreciative understanding between the practitioners of the three crafts than ever before; but in general, the training of the architect, the painter and the sculp-

tor, respectively, has stopped short of the point to which it must extend in order to enable each to co-operate effectively with the other two, and it is well to consider carefully the reasons for this and the best means of arriving at some practical corrective. . . .

The past twenty-five years in this country have brought us to the point where the ability of our architects, painters and sculptors to grapple with the new problems is recognized as being of the proper calibre to be entrusted with these problems. Certain definite achievements in architecture, painting and sculpture have justly challenged the admiration of the world. There is probably no country in which the average artistic intelligence of the educated class of people is higher, and here in New York the recent accessions to our museums and libraries have placed at our disposal a mass of material quite as broadly representative of the art of the world as can be found in any single foreign art center. The time is surely come to ask ourselves what use is to be made of this material. If the development of a national art means beginning at the beginning and working out our own conceptions of things uninfluenced by the older civilizations, it would be better for the Metropolitan Museum to sell out, and the proceeds could well be devoted to the establishment of schools for the dissemination of modern ideas. If, on the other hand, the influence of this and other similar institutions is to be utilized in the development of a national art which is founded upon the best of all that has gone before, it is time to begin utilizing these agencies systematically in the training of our students. This matter is absolutely in the hands of the practicing artists of the country. The character of our actual productions and the conditions under which we must work in producing them are frequently predetermined for us. The architect is, in the majority of cases, obliged to complete his design to the last detail with no definite assurance as to whether the service of the painters and sculptors, whom he selects, will be available for its completion or, in fact, whether any such enrichment will be possible. The painters and sculptors are, as a rule, called upon to formulate their designs after the decorative character of the building has been so fully determined as to make it almost impossible for them to influence its character to any appreciable extent; the result being that the architecture and architectural ornament of the architect, the panels, ceilings, pendentives or lunettes

of the painter, the groups, figures and reliefs of the sculptor when finally assembled in the finished work, however distinguished they may be as individual performances, are rarely harmoniously conceived and never carry conviction as inseparable parts of a single artistic unit. This is a condition of the times which is more or less outside of the control of the artist, but the determination that the rising generation of artists shall be so equipped as to enable them to throw off these hampering conditions when the opportunity presents itself is absolutely within the control of the professional artists of today. . . .

The training of the architect of the present day in the matter of decoration fits him to establish in a general way the scheme or part of his decorative enrichment and provided he does not depart too radically from the composition details, motif and color scheme of some selected model or models he may be reasonably sure of obtaining a certain consistently high quality in his finished work by enlisting the services of painters and sculptors carefully schooled to execute the particular portions of the work he regards as suited to their capacity and past performances. Thus our more important structures are completed. The strength of the architect is evident in the composition, proportion of parts and scale and relation of details, but the sculpture and painting, though often combined with the architectural treatment in such a way as to avoid discord and achieve dignity and distinction, still count as distinct decorative entities which are not inseparable parts of the scheme but might, we feel, find an equally appropriate setting elsewhere, and any marked individuality in the ornament embodied in these details is almost certain to be disturbing to the unity of the entire scheme because this variation from historic precedents is almost always the result of a conscious effort to break away from precedent instead of a sincere and painstaking desire to so utilize the precedents as to impart to them some new significance that will endure them with renewed vitality. . . .

The changes of taste that make the art collections of wealthy connoisseurs of a generation ago look like fashion plates of the year before last, are sure to continue. The same public that in 1880 loved to buy what anyone would believe was a dollar bill pinned on the wall until they felt of it and found that it was paint, today revels in impressions of dazzling sunlight and vivid motion. What if a few years hence the impression of sound

or smell, or anything else not perceptible to the human eye, is the thing demanded? Let the dead artistic fads go on burying their dead. The art business is a big business, and this sort of thing stimulates trade. But along with this sort of thing there must be an undercurrent of enduring tradition. We, the artists of the present generation, cannot afford to leave to this kind of fickle fashion the training of the men who are to succeed us. If the great fundamental standards of artistic achievement are common to the three great branches of the art of design, we must see to it that the training for the practice of all these branches is so co-ordinated as to bear these standards into practice and that our successors are so equipped as to enable them to do effectively what we have the will but not the training to do. The best means of accomplishing this is not a matter to be determined without the most exhaustive collaborative study on the part of broadly trained architects, painters and sculptors, but certain phases of the matter are already so obvious as to bear enumeration.

The most serious obstacle encountered by the members of these three crafts in endeavoring to collaborate is found in the fact that the architect's method of work is to fully develop his design and definitely determine the fundamental features of his composition at an exceedingly small scale—far too small to enable the painter to express his idea at the same scale in paint, or the sculptor to do so in clay. It follows from this that the finished studies of a complete decorative scheme only come into being, as a rule, long after the distinctly architectural portion of that scheme has been determined and has developed far beyond the possibility of radical change. That the habit of arriving at a definite conclusion as to the main features of their painted or modelled composition, through the medium of small scale drawings, was a familiar part of the procedure of the painters and sculptors of the Renaissance and down to comparatively recent times, is evidenced by a vast number of drawings and sketches in the Louvre and other great museums, and a critical comparison of these small scale preliminary studies with the finished works which resulted from them shows that in a vast number of cases these studies were not mere tentative sketches, but embody a com-

plete decision and agreement as between the various craftsmen concerned in the work of all fundamental features—architectural, sculptural and chromatic. Many of the sculptors and painters of the present day possess the faculty of producing small scale studies full of suggestion and inspiration, but I know of no painters and very few sculptors who have developed the ability to make these scale studies adequately expressive of the final finished result in such a way as to permit of the preliminary meeting of the minds of the architect painter and sculptor at a time when the entire scheme is in such a plastic state as to secure elasticity in its three parts instead of only in two.

Therefore, to my way of thinking, one of the most essential features of a co-ordinate system of instruction of architects, painters and sculptors should be the exercise of all three of them in certain identical problems of design at an identical scale expressed by practically identical mediums—at first view this suggestion would appear to be directed mainly to the finding of a convenient method of procedure, but in reality it is far more fundamental than that because it seems to be the only means whereby the several minds which are jointly to determine the character of the finished work can meet and determine what are the fundamental considerations to be secured at a time when these fundamental considerations are not in danger of being obscured by exigencies of secondary importance. . .

If here in New York where are assembled the greatest mass of artistic documents of the western hemisphere and whence diverge the lines of traffic and commerce, we of the present generation by the unification of all the agencies that make for education in architecture, sculpture and painting in all its branches, shall bring into being a school of the Arts of Design dedicated to the proposition that they are inseparably one and that any real progress in one must involve progress in all, devoted to the task of instructing the future generation of artists that illimitable progress is possible within the bounds established by the traditions of four thousand years then we may well feel that the artistic future of this country is safe and once again we shall demonstrate to the older civilizations that in the arts as well as in State Craft "Union is Strength."



THE ARCHITECTURAL RECORD



VOL. XXXIII
No. IV

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PUBLISHED MONTHLY BY
THE ARCHITECTURAL RECORD COMPANY
11-15 EAST TWENTY-FOURTH STREET, NEW YORK

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PRESIDENT

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YEARLY SUBSCRIPTION
UNITED STATES, \$3.00
—FOREIGN, \$4.00—
SINGLE COPIES, 25c

ENTERED MAY 22, 1902, AS SECOND
CLASS MATTER AT NEW YORK, N.Y.

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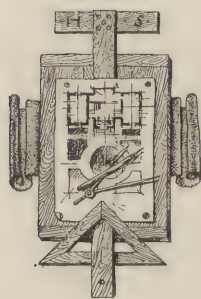
THE ARCHITECTURAL RECORD

APRIL, 1913

VOLUME XXXIII



NUMBER IV



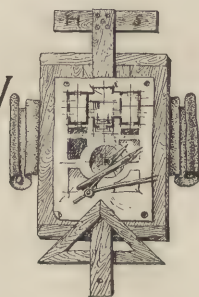
THE RECENT WORK OF HOWARD SHAW

COUNTRY HOUSES OF THE MIDDLE WEST

*** BY A CHICAGO ARCHITECT ***

NOTES by HERBERT D. CROLY &

C. MATLACK PRICE



THE MAN WHO finally writes the history of American domestic architecture in the first quarter of the 20th century will be confronted by a very fascinating but a very difficult task. The task will be fascinating, because of the very large amount of really eminent and distinguished work which is being erected in almost every important geographical division of the country; but it will be difficult because of the immense variety of this work and the elusive personal and technical considerations, which have determined its character. The great variety of the work will make it impossible to classify and singularly hard to appraise. It is being produced under conditions which grant to the architects freedom from certain restrictions such as they never before enjoyed during any fruitful period of domestic architecture, while at

the same time they suffer also from certain drawbacks and handicaps, for which also there is little precedent. The actual result is produced by a medley of supplementary and conflicting influences, the precise effect of which in any particular instance can rarely be disengaged and traced.

The American domestic architect in good standing certainly enjoys an unusually excellent opportunity of expressing a strongly individual point of view. The material with which he deals is in certain respects extraordinarily flexible. Instead of being limited to a single prevailing style, he can choose from among a large variety of historical models that which answers best to his own personal needs and point of view. Instead of building for a class of people, the needs and conventions of whose lives are very

much the same he is building for families who differ enormously one from another in their standards of comfort and luxury and in the practical needs of their lives. The plan of every new house is a special problem just as much as the design.

The freedom enjoyed by the contemporary American domestic architect may seem to be as much of a danger as it is an advantage; and in certain aspects it is dangerous, but its dangers are moderated by the limits which are imposed upon possible extravagance. In the first place

end its excesses are usually regulated by a certain refinement of taste. Moreover under the conditions which determine the design of modern American houses the individuality of the owner counts for a good deal as well as the individuality of the architect. Sometimes this influence is baleful in its effect, but when the relation between the architect and his employer is sympathetic, as is frequently the case, the effort of the owner to build a house really suitable to the life of his clients is often stimulating and results in



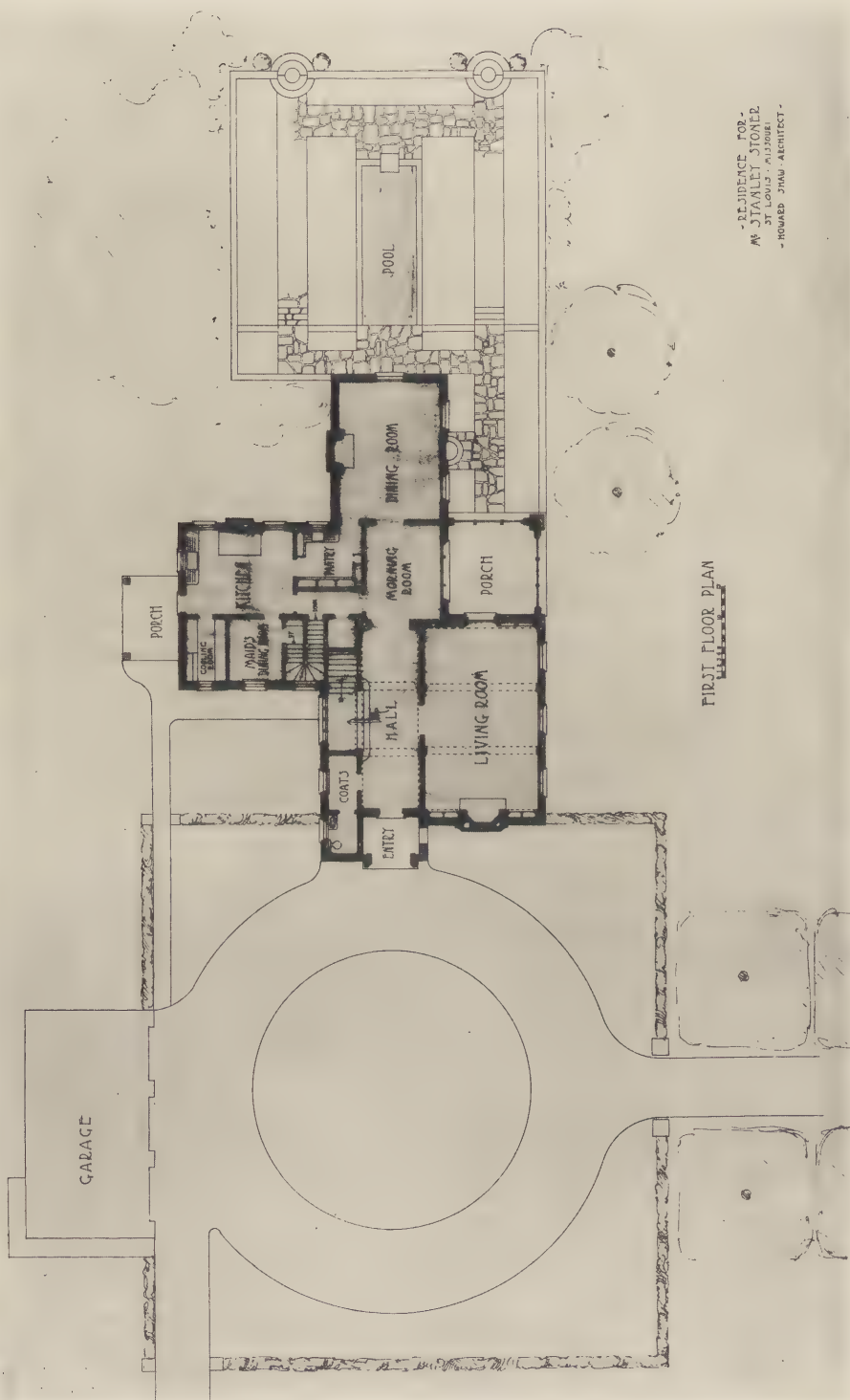
RESIDENCE OF B. E. BENSINGER, ESQ., GLENCOE, ILL.
Howard Shaw, Architect.

the eclecticism of modern American domestic architecture has not resulted in violence and disorder. It is restrained by the prevalence of increasingly high technical methods and by a constantly improving standard of popular taste. Although American architecture is more individual than ever before in its history, its individuality rarely becomes eccentric. At its best it is united with a certain freedom and scope of architectural imagination which is beginning to give us some really bold and striking examples of architectural composition, and at the other

many interesting variations from his own habitual line of work. It is this effect of the client upon the architect which constitutes the most elusive of all the influences which are determining the character of modern American houses. No one can place any estimate upon its force in any particular case except the architect himself, and apart from particular cases the extent of its power is absolutely inestimable. Yet every one, who is well acquainted with the practical conditions under which modern American dwellings are designed, knows how de-



ENTRANCE DETAIL, RESIDENCE OF
DR. B. W. SIPPY, CHICAGO, ILL.
HOWARD SHAW, ARCHITECT.



-RESIDENCE FOR-
 MR. STANLEY STONER,
 ST. LOUIS, MO.
 -HOWARD SHAW, ARCHT.-

PLAN OF THE RESIDENCE OF STANLEY STONER, ESQ.,
 ST. LOUIS, MO.
 HOWARD SHAW, ARCHT.



RESIDENCE OF STANLEY STONER, ESQ., ST. LOUIS, MO.
HOWARD SHAW. ARCHITECT.



REAR OF THE LAKE SHORE COUNTRY CLUB, GLENCOE, ILL.
Howard Shaw, Architect.

cisive the influence of the client has been in determining the appearance of certain very successful houses.

A prudent historian and critic will not consequently attempt to force modern American dwellings into any rigid or comprehensive classes. The merely accidental personal element in their appearance is of enormous importance and accounts for much of the fascination of their total effect. The extraordinary thing is that they can be so varied and yet so congruous, that they can combine so much individuality with so much propriety. The art of architecture must be practiced under conditions which are not only unprecedented but thoroughly sound. If they were not sound there would be a much larger infusion of meaningless eccentricity in the final result.

Among contemporary American architects, who have designed more residences than any other class of buildings, there are few whose work is more representative of certain generally prevailing tendencies than Mr. Howard Shaw, of Chicago. Mr. Shaw is in the first place an eclectic but only within certain moderate

limits. He is perhaps more of an eclectic than those of his colleagues in New York and Boston, who stand parallel with him in their own communities as residential architects; but he is far less of an eclectic than were many American designers of the preceding generation. There was a time when an architect was a learned man who was supposed to have enough knowledge to furnish correct copies of any historical style. The modern eclectic does not pretend to be correct in his derivations. He borrows motives rather than specific forms, and if there is anything which he particularly desires to avoid, it is the slightest suggestion of pedantry. This is the sense and the way in which Mr. Shaw is an eclectic. One can trace in his work the influence of many different historic styles, but there is not the slightest hint of any literal copying. It is frequently difficult to say whether any particular house belongs more specifically to an early or late phase of any particular style. In some instances it is even difficult to assign to his houses any pedigree at all. While there is a palpable traditional element in the work, the tradition is decid-

edly less specific than it would be in the case of the majority of his equally successful contemporaries.

In the case of Mr. Shaw eclecticism has, perhaps, been carried a little too far. When one tries to define the salient motives of Mr. Shaw's method of design, one is confronted by a puzzling task. The presence in his work of a vigorous individual quality is unmistakable; but when the attempt is made to seize and describe it the quality proves to be elusive. His eclecticism has not the slightest tendency towards eccentricity except in the use of certain details, but it does tend to be a little miscellaneous. The individual quality in his work would count for more in case it expressed itself in more decided preferences, which were carried to more consistent conclusions. It is partly dissipated by its own methods of expression. If it had received a more specific technical expression it would make a more powerful effect.

Because of its tendency to be somewhat miscellaneous, Mr. Shaw's work is peculiarly representative of certain dominant characteristics of American domestic architecture as a whole. Its miscellaneous quality is the result of prevailing practical conditions, which press rather more heavily upon an architect in the Middle West than in the East. In the first place Mr. Shaw is extraordinarily popular. The number of houses which he designs would be astounding to the architect of any European country, and it is sufficiently rare in this country. Under such conditions the fortuitous element in the design of each particular house tends to increase, and the individuality of the client necessarily plays a very important part in determining the result. Mr. Shaw's success is a good deal due to the fact that he is able to give to his clients what they want, while at the same time designing houses that are always individual and often charming and distinguished. The ability to please one's cli-



RESIDENCE OF H. H. HILTON, ESQ., CHICAGO, ILL.
Howard Shaw, Architect.



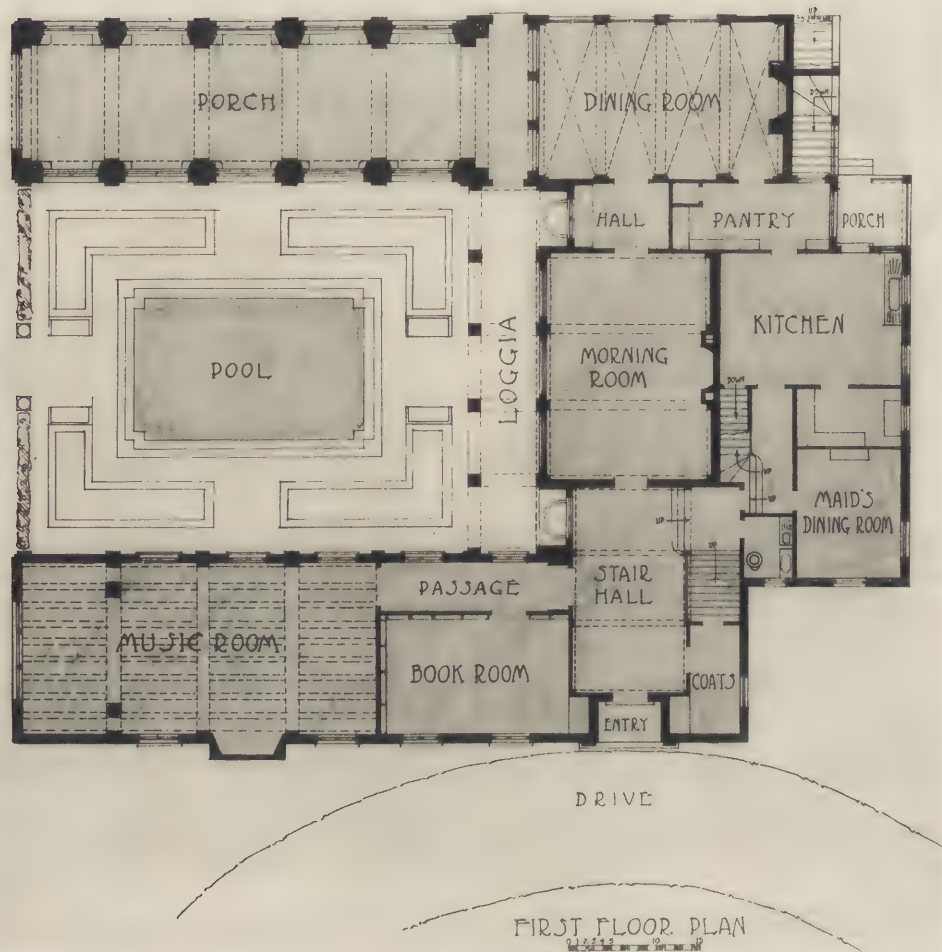
DETAIL OF DOOR—RESIDENCE OF E. NORMAN SCOTT, ESQ., LAKE FOREST, ILL.
HOWARD SHAW, ARCHITECT.



RESIDENCE OF E. NORMAN SCOTT, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.



RESIDENCE OF T. E. DONNELLY, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.



PLAN OF THE RESIDENCE OF E. NORMAN SCOTT, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.

ents and the ability to assist one's own architectural individuality in a consistent way are not always compatible; and some of the miscellaneous character of Mr. Shaw's work is the result of this incompatibility. The class of people for whom Mr. Shaw builds is exceptionally good. The prosperous business and professional man of the Middle West and his family are very real people. They usually have decided preferences both in the arrangement and the appearance of their houses; and these preferences are more apt to be the result of desires and tastes, which an architect is bound to respect, than is frequently the case with the

corresponding class in the East. But of course when these somewhat miscellaneous needs and tastes are an important factor in determining the appearance of a group of houses the houses necessarily become difficult to classify. They have a little of the effect of a collection of pictures by different painters of the same school instead of a collection of pictures, which are the handiwork of one man.

The concluding statement of the last paragraph is, however, an exaggeration. Mr. Shaw's architectural individuality does not obtain a sufficiently consistent vehicle of expression, but it is vigorous and it is usually palpable. Mr. Shaw likes



RESIDENCE OF E. NORMAN SCOTT, ESQ.,
LAKE FOREST, ILL. HOWARD SHAW, ARCHITECT.



THE HALL—RESIDENCE OF HUGH J.
McBIRNEY, LAKE FOREST, ILL.
Howard Shaw, Architect.

the more sturdy and substantial architectural characteristics. One does not find in his buildings much refinement of line or much carefully wrought and delicate detail, but one almost always finds an effective general idea which is vigorously expressed in a well-composed mass, and this vitality, as well as his ability to satisfy his clients, is partly the secret of his success. His clients, while they dislike any suggestion of violence or coarseness, decidedly prefer an expression of force in their buildings rather than expression of distinction or mere daintiness, and in this preference they are most assuredly right. The better American architecture errs rather on the side of excessive refinement than of excessive power; and it is refreshing to look at the house of an architect like Mr. Shaw, who is always positive and vigorous—even if this positive quality is sometimes dissipated by its detailed embodiment.

Another merit of Mr. Shaw's houses, which accounts for the success of their designer is their almost uniformly homely and livable quality. This is a merit, upon which Americans are coming more and more to insist, and which American

architects are becoming more and more capable of achieving. There was a period about fifteen years ago, when the more expensive houses built in this country seemed to tend to embody the French ideal of impersonality; but such is no longer the case even with the big show places, and it never was the case with the more modest dwellings. Of course many handsome houses are still built, whose appearance seems to be determined by a desire upon the part of the owner to be socially correct and a desire on the part of the designer to be architecturally correct. But these houses are not typical. Almost every American architect, who has succeeded in making a considerable reputation for residential work, has possessed the gift of making his houses in-



FIREPLACE—RESIDENCE OF FINLEY BAR
RELL, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.



ENTRANCE DETAIL, RESIDENCE OF
EDWARD MORRIS, ESQ., CHICAGO, ILL.
HOWARD SHAW, ARCHITECT.



ENTRANCE DETAIL, RESIDENCE OF
PETER FORTUNE, ESQ., CHICAGO, ILL.
HOWARD SHAW, ARCHITECT.

dividual and livable. This was true even of Stanford White, and it is still more true of his successors in the same tradition, such as Platt, Pope, Bigelow, Heun, Wilson, Eyre and many others. Our domestic architecture is allied in this respect with the English tradition, and this in spite of the fact that it is also seeking a certain purity of style which English domestic architecture never achieved except within a very limited range.

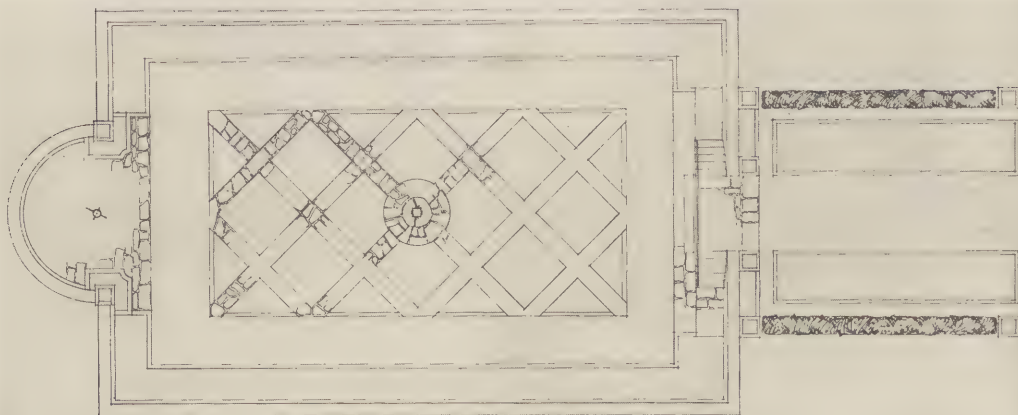
Mr. Shaw's houses possess to a very considerable extent the merit of being thoroughly livable. In this respect he adheres more closely to the English tradition than do the majority of his contemporaries. Even when least impeccable from the point of view of design, one of his houses will always look pleasant and personal. His ability to obtain this effect is probably closely associated with his ability to please his clients. It is a tribute as much to the man as to the designer. He can see his houses in a cer-

tain human relationship; or rather he can usually see his clients in a certain appropriate architectural background. His eyes are not glued to the draughting board. The designing of buildings is to him a human matter as well as a professional and a technical matter. The consequence is that in his better buildings Mr. Shaw reaches a very high level of personal achievement. These houses are charming and inviting to a degree rarely exceeded in American domestic architecture—a fact which justifies Mr. Shaw's success as well as accounts for it. A man who can design dwellings which look so attractive to live in, as certain of the dwellings illustrated herewith, can be forgiven a far heavier burden of architectural misdemeanor than Mr. Shaw bears upon his shoulders.

The particular group of houses, illustrated herewith, exhibits all phases of Mr. Shaw's work. It contains some of the best residences which he has ever designed as well as some that do him much



RESIDENCE OF L. B. KUPPENHEIMER, ESQ., GLENCOE, ILL.
Howard Shaw, Architect.



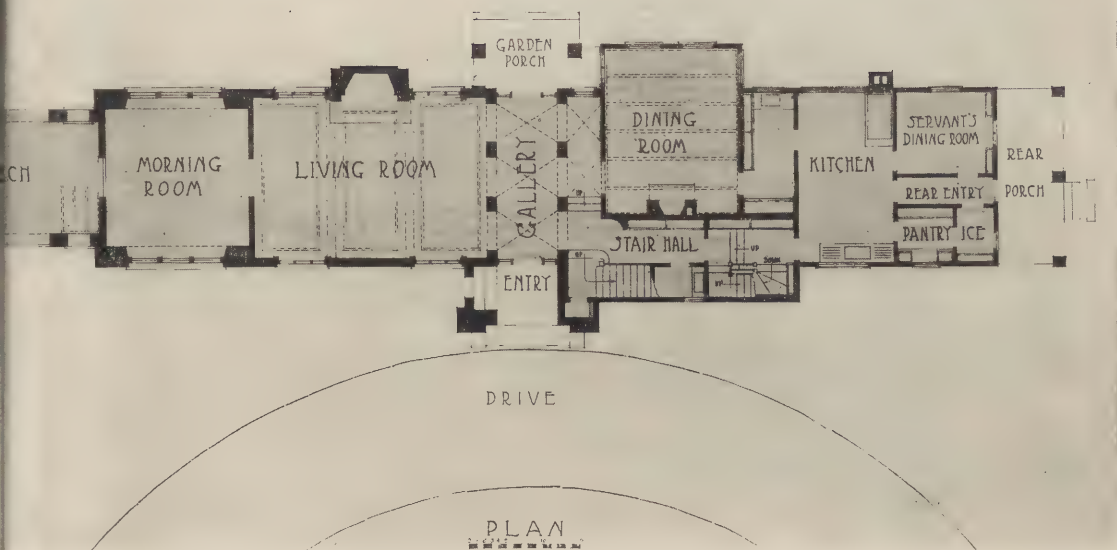
GARDEN AND HOUSE PLAN—RESIDENCE OF HUGH J. MCBIRNEY, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.

less credit. But in every instance of the better work, there is some minor imperfection or incongruity which injures the integrity of the design, while there is not one of the inferior houses that does not betray the presence of real force on the part of the designer. The general impression one gets is that of watching a rather mixed assemblage of people, who are on the whole interesting and vigorous, but who could have with advantage been submitted to a more exacting standard of selection. It should be added, however, that if the standard of selection had been higher, the result might

have been more artificial and less individual. Mr. Shaw is not one of those men who imposes standards upon his clients very much higher than they are prepared to receive; but he does take advantage of every opening afforded by his clientele to do sound and good work. The consequence is that while he has not been a strong formative influence among his following and in his community, the effect of his work has been highly beneficial. It is all the better understood and all the more convincing, because people do not have to strain themselves in order to climb to the required level.



RESIDENCE OF HUGH J. MCBIRNEY, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.



These residences exhibit a very considerable variety of plan and style. At one end there are several houses whose motive has been derived from a late phase of Jacobean. At the other end there are a couple of instances of façades which are much more Italian than anything else. Between these two extremes there are various intermediate phases, chiefly of rather vague English renaissance parentage, but none of them of unexceptional pedigree. Mr. Shaw is nothing

less than doctrinaire or pedantic. He designs individual houses for particular clients, and borrows from anyone or any number of sources as much or as little as he pleases. But wide as is the range of his sources it has significant limits. He rarely gets too far away from the English renaissance. He eschews or at least sedulously neglects Tudor and Elizabethan sources; and he will have no dealings with frog-eating Frenchmen. Few contemporary American architects



RESIDENCE OF HUGH J. MCBIRNEY, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.

of similar standing are so entirely free from French influence as he is. Even his Italian excursions are made in English or American company, and are not based upon any fresh or original interest in Italian domestic architecture. Mr. Shaw is fundamentally English, but with his English tendencies molded to meet contemporary American standards, conditions and needs. And in this respect he is representative of his own community. Considering the number of Americans who have studied in Paris, or whose

spirit rather than form that it might easily escape detection.

The foregoing general observations may be illustrated by a detailed comment on certain particular houses. Take for instance the residence of B. E. Bensinger at Glencoe, Illinois. The parentage of this design is manifestly Italian, but the atmosphere of the house itself is just as unmistakably English. It has the quiet, unpretentious and unstudied charm of the English villa at its best. The house of Mr. R. C. Shaffner in Highland Park



RESIDENCE OF DONALD R. McLENNAN, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.

instruction in this country has been French in general character, the wonder is not that the specifically French influence is so strong but that it is so weak. And so far as can be judged it is on the wane rather than on the increase. Whatever may be thought of the value of the national element in American architecture there can be no doubt that it is steadily emancipating itself from specific fealties. Even in the case of an architect like Mr. Shaw with a specific tendency, his Anglicanism is so much a matter of

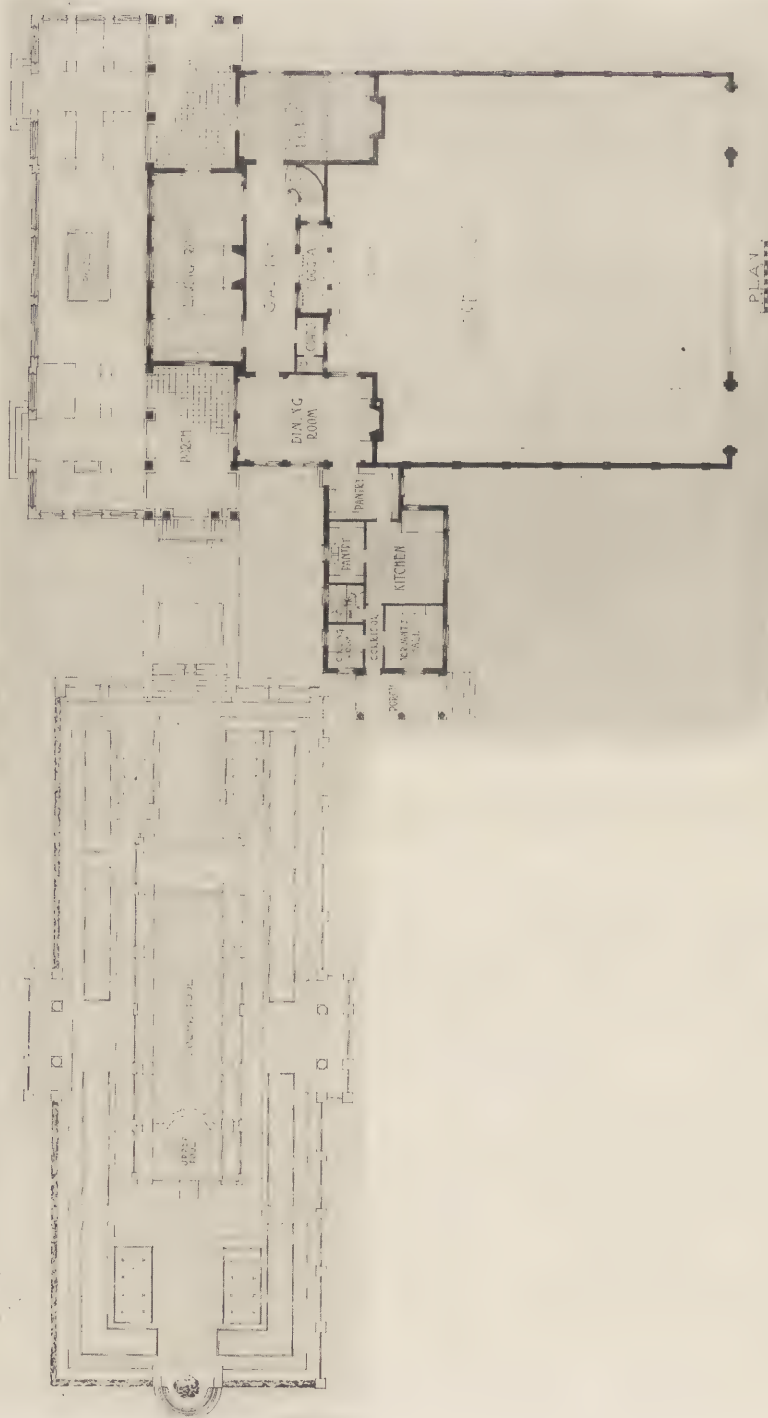
is another good example of Mr. Shaw's, although in this instance the purity of the design is marred by the two-storied porch at the end of the house. The way in which this porch injures the design of the house is obvious to the most unskilled eye. It is inconceivable that Mr. Shaw would have made it project in just this manner except under pressure, and all that can be said is that he yields to pressure of this kind. People must sleep out of doors now-a-days at any architectural cost. The house of Col. G.



RESIDENCE OF DONALD R. McLENNAN, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.

W. French at Davenport, Iowa, exhibits another significant aspect of Mr. Shaw's work. It is a simple and robust bit of design—excellent in composition and pleasant in atmosphere. Mr. E. Norman Scott's house at Lake Forest is another case of Anglicized Italian; but the Italian is extremely superficial. It should be compared not to an Italian who was domiciled in England, but to an Englishman who had spent a few years in Italy, and had acquired a taste for the architectural equivalent of macaroni. It is characterized by a lack of integrity of conception, which is wholly un-Italian, but one likes it so much that one does not care whether it has any integrity of conception or not. The house is an instance of pleasing architectural sentimentalism which must appeal to anybody

with feeling. It is interesting to note, however, that the treatment of the front of this dwelling—that part which is exposed to the public—is as severe as that of the garden side is incidental. It is, in fact, so severe that the ornamental framing of the entrance door looks as if it had been added to a dwelling built at a much earlier date and under ruder surroundings. The McBirney house at Lake Forest has some claim to be considered the best of all these houses. It can hardly be said to have any recognized parentage at all. It is conceived in accordance with perhaps the most wholesome tradition of American architectural realism, and it combines excellent composition with a picturesque effect and a complete absence of nonsense of all kinds. A more elaborately con-



GARDEN AND HOUSE PLAN, RESIDENCE OF FINLEY BARRELL, ESQ.,
LAKE FOREST, ILL.
HOWARD SHAW, ARCHITECT.

ceived house is that of Mr. D. R. McLennan, also at Lake Forest, but it is almost equally successful.

The brick houses, illustrated herewith are most of them much more expressive than the ordinary run of Mr. Shaw's work. Of particular interest is the residence of Mr. Finley Barrell. It is one of the comparatively rare examples in the neighborhood of Chicago of a country place which has been completely developed—that is, which has been designed just as carefully for the purpose of making the open-air surroundings of the house habitable as it has for the purpose of making its interior attractive and homelike. The result is an extremely interesting plan and an extremely interesting design. The arrangement of the ground floor is particularly worth attention. The architect has laid out three large rooms, each of which is spacious and well located, each of which is connected with out-door rooms, and each

of which is conveniently connected with one another. At the same time the separation between the kitchen and servants' quarters and the rest of the dwelling is as complete as possible. The exterior of the dwelling is less interesting now; but it will become much more interesting after it has been lived in for a few years. A residence of this kind needs the confirmation which can be obtained only from the growth of the vines, trees and shrubs which have been planted in order to soften and supplement the harshness of the building. The Donnelly house at Lake Forest is a less pretentious building, but it is more interesting from the point of view of composition. It would, indeed be entirely successful were it not for the dormer windows, which hurt the balance of the design in an irritating way. Mr. C. H. Hermann's house at Glencoe is allied to that of Mr. Donnelly in conception but it is decidedly less successful. The garden façade of



RESIDENCE OF FINLEY BARRELL, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.



GARDEN AND RESIDENCE OF FINLEY BARRELL, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.



RESIDENCE OF FINLEY BARRELL, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.

this residence has more character and interest than the entrance façade. A very handsome city residence is that of Edward Morris in Chicago. The architect has succeeded admirably in suggesting a certain opulence without any mere ostentation. The details of this design are particularly worth examination and study. Much of the successful effect of the façade may be traced to the way in which the ornamentation supplements the composition.

H. D. C.

II.

MANY PEOPLE will be inclined to rate the A. H. Marks house at Akron, Ohio, as one of Mr. Shaw's most successful and pleasing designs. Possessing as it does a certain conservatism combined with an interesting proportion of originality in its general aspect, it presents as well an excellent adaptation of the best type of English country-house plan.

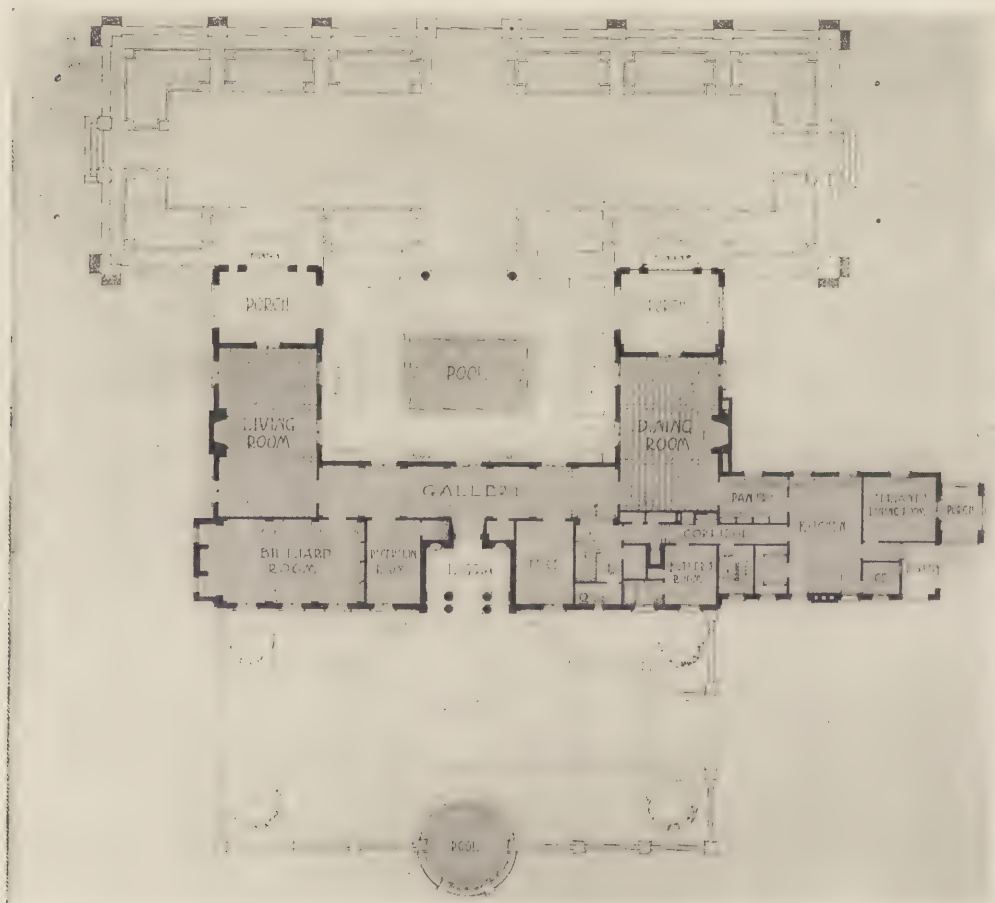
Yet, as in much of Mr. Shaw's work, it is not entirely conceived in any "style," for the entrance "loggia" is, if anything, Italian. This loggia, rather dignified and even severe in its treatment, gives into a long gallery, at right angles with the axis of the loggia. This gallery, with French windows opening to the garden court and pool, leads to the left into a great living room and, correspondingly, to the right into a dining room. At this end of the house are grouped the service stairs, butler's room, servants' dining room, kitchen, pantries, and other household offices, while the central loggia is immediately flanked by a reception room and the owner's "office." The "office" is an idea taken directly from the English country house, and, in instances where the owner has occasion to interview employées or others connected with the estate or outside business, these need not be received in the house itself. The location of the bil-

liard room is well calculated to afford the club-like seclusion from the rest of the house and household which such a room should possess. There is a certain quality of symmetry about the entire plan which should commend it on sight—a symmetry in which the essentials are architecturally “on axis,” but a sane arrangement in which practical convenience has not been sacrificed.

Furthermore, the garden has not been laid out (as is too often the case in the American country house) as though it had nothing to do with the house, but is brought into intimate connection with it by the raised court between the living room and dining room wings—a court warmly walled with brick, and planted

all about with flowers. Two tall, detached columns on the terrace edge mark the broad stair down to the lower garden which, in turn, is terraced down to the level of the lawn. Certainly the architect is to be congratulated in that he has achieved a house which is not only a logical plan “on paper,” but which sits so gracefully and effectively on its site. Despite the service wing, the impression of the garden front is of balance, while the open-air rooms on the second floor of the two main wings have been cleverly devised, by a suggestion of fenestration, to avoid the cavernous effect of the usual out-door sleeping room.

As a maker of gardens Mr. Shaw is peculiarly successful, and perhaps for



HOUSE AND GARDEN PLAN, RESIDENCE OF A. H. MARKS, ESQ., AKRON, OHIO.
Howard Shaw, Architect.



Photograph by Steffens.

RESIDENCE OF A. H. MARKS, ESQ., AKRON, OHIO.
HOWARD SHAW, ARCHITECT.



Photograph by Steffins.

POOL IN FORECOURT OF THE A. H. MARKS RESIDENCE, AKRON, OHIO.

Howard Shaw, Architect.

the reason that he imparts to his garden designs something of the old world flavor.

The forecourt of the Douglas house, for instance, albeit reminiscent of *Vicobello*, is happily so, and strongly illustrative of two complementary qualities which, primarily, go to the making of good architectural gardening. The background of poplars makes a splendid foil for the fountain and the terrace wall, while these in turn enhance by contrast the green behind them.

In well-studied gardens of the formal, or even the semi-formal, type there must be an abiding conjecture as to whether the effect is that of architecture embellished by planting or that of planting embellished by architecture. Since the days of the Italian gardens perhaps no architects have mastered this principle of garden design so thoroughly or so powerfully as Lutyens and Mallows in England. As a composition, as a picture in three dimensions (which is the problem of the landscape or garden design-

er), certainly this bit by Howard Shaw is technically and esthetically successful.

In the matter of designing interiors Mr. Shaw shows not only greater architectural individuality, but also a quality more nearly approaching consistency and personal style than he displays in the external aspect of his country houses.

One feature stands out saliently, and though it may seem an inconsequential detail, yet it is so characteristic of the architect that any observant critic, noticing it, would instantly guess that he was in a "Howard Shaw" house. Mr. Shaw seems to occupy a unique position in American architecture in his appreciation of the decorative value of ornamental plaster. Many American architects have availed themselves of the conventional "figured plaster" ceiling in geometrical arabesques, but it is hard to call to mind any (with the exception of Cram, Goodhue and Ferguson) who have utilized the more informal type of figured plaster work.

Among the illustrations here, note



Photograph by Steffins.

THE GARDEN FRONT, RESIDENCE OF
A. H. MARKS, ESQ., AKRON, OHIO.
HOWARD SHAW, ARCHITECT.



Photograph by Steffens.

RESIDENCE OF A. H. MARKS, ESQ., AKRON, OHIO.
HOWARD SHAW, ARCHITECT.



Photograph by Steffens.

DETAIL OF ENTRANCE LOGGIA, RESIDENCE
OF A. H. MARKS, ESQ., AKRON, OHIO.
HOWARD SHAW, ARCHITECT.



Photograph by Steffins.

DETAIL OF TERRACE COURTYARD, RESIDENCE OF A. H. MARKS, ESQ.,
AKRON, OHIO.
HOWARD SHAW, ARCHITECT.



Photograph by Steffens.

THE LIVING ROOM, RESIDENCE OF A. H. MARKS, ESQ.,
AKRON, OHIO. HOWARD SHAW, ARCHITECT.



Photograph by Steffens.

THE DINING ROOM, RESIDENCE OF A. H. MARKS, ESQ.,
AKRON, OHIO. HOWARD SHAW, ARCHITECT.



LIVING ROOM, RESIDENCE OF HUGH J. MCBIRNEY, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.

should be made of the interiors shown of the Douglas, Marks, Barrell, Hermann and Morris houses, where either frieze or ceiling beam has been made interestingly attractive with bands of curvilinear, free and informally conventionalized ornament.

The dining room of the Douglas house is very interesting, and shows not only Mr. Shaw's characteristic decorative plaster work, but also a quaint and remarkably effective painted frieze above richly figured paneling. The excellent choice shown in the selection of lighting fixtures is apparent in this, as in nearly all of Mr. Shaw's work, and though this may seem outside the province of architecture proper, it is, none the less a particular in which many otherwise excellent interior schemes fail miserably.

An interesting impression can be recorded as obtaining in Mr. Shaw's con-

ception of an interior, be it rich or severe—an impression that it represents neither the style of any specific "period" of decoration, nor yet any entirely original style of the architect. These interiors suggest without representing—they have an atmosphere of traditional conservatism plus the "personal equation" of the architect.

There is the same impression in the interiors of the Marks house—in the living room, perhaps, a more distinctly Italian feeling, especially in the painted ceiling. By chance of the owner's possession, or by the perception of the architect, the effect and character of many of Mr. Shaw's interiors are vastly enhanced by the introduction of tapestries.

The living room of the McBirney house is more like Mr. Shaw's earlier work than most of the other interiors shown. There is a delicate application of figured plaster on the ceiling, which

tends to throw the heavy mantel-piece entirely out of scale, although its broad expanses contribute toward the impression of simplicity which was evidently desired throughout the house, as evidenced by the treatment of the hall.

Mr. Shaw, departing from his characteristic interior treatment, almost effected a Georgian rendering in the dining room of the Hermann house, but asserted himself in the figured plaster frieze, informal and pleasantly decorative. Again, worthy of note is the nicety of scale in the lighting fixtures.

It is unfortunate that the architectural excellence of the library in the Morris house has been spoiled by the comparative triviality in scale of the pictures; as well as the restless diversity in their sizes and their frames. Here is an instance in which the architect might excusably have wished to carry out the entire room, for none but a certain kind

of picture in a certain kind of frame can dwell in harmony and accord with an all-paneled wall.

Returning again to ideas of simplicity, there is the entrance hall of the Coonley house—an interior in which an interesting beam and plank ceiling seems to suggest more of Wilson Eyre's mediaevalism than we generally associate with Howard Shaw. Also there is a flavor of modern English domestic architecture, a reminder of Voysey or Baillie Scott, yet withal a rendering by no means out of place on American soil, and one which is readily and wholly acceptable on sight, regardless of suggestion or precedent.

Broadly speaking, Mr. Shaw's ideas in the design of interiors seem to show a tendency in the direction of the English domestic type, though there is too much originality in them to give aptness to any strict comparison. We have grown



DINING ROOM, RESIDENCE OF C. H. HERMANN, ESQ., GLENCOE, ILL.
Howard Shaw, Architect.



LIBRARY, RESIDENCE OF EDWARD MORRIS, ESQ., CHICAGO, ILL.
HOWARD SHAW, ARCHITECT.

so habitually used to tracing architectural derivations that it is doubtful if we are in a sufficiently independent receptive mental attitude to recognize original architecture in this country if we were confronted with it.

Upon analysis it will be found that Mr. Shaw's sense of scale and appropriateness in interior details finds more evident expression than in exterior details. A general appropriateness makes itself felt—a sense which is derived no less from pleasing detail than from pleasing proportions. No superficially architectural embellishments can save a room which, in itself, is "the wrong shape."

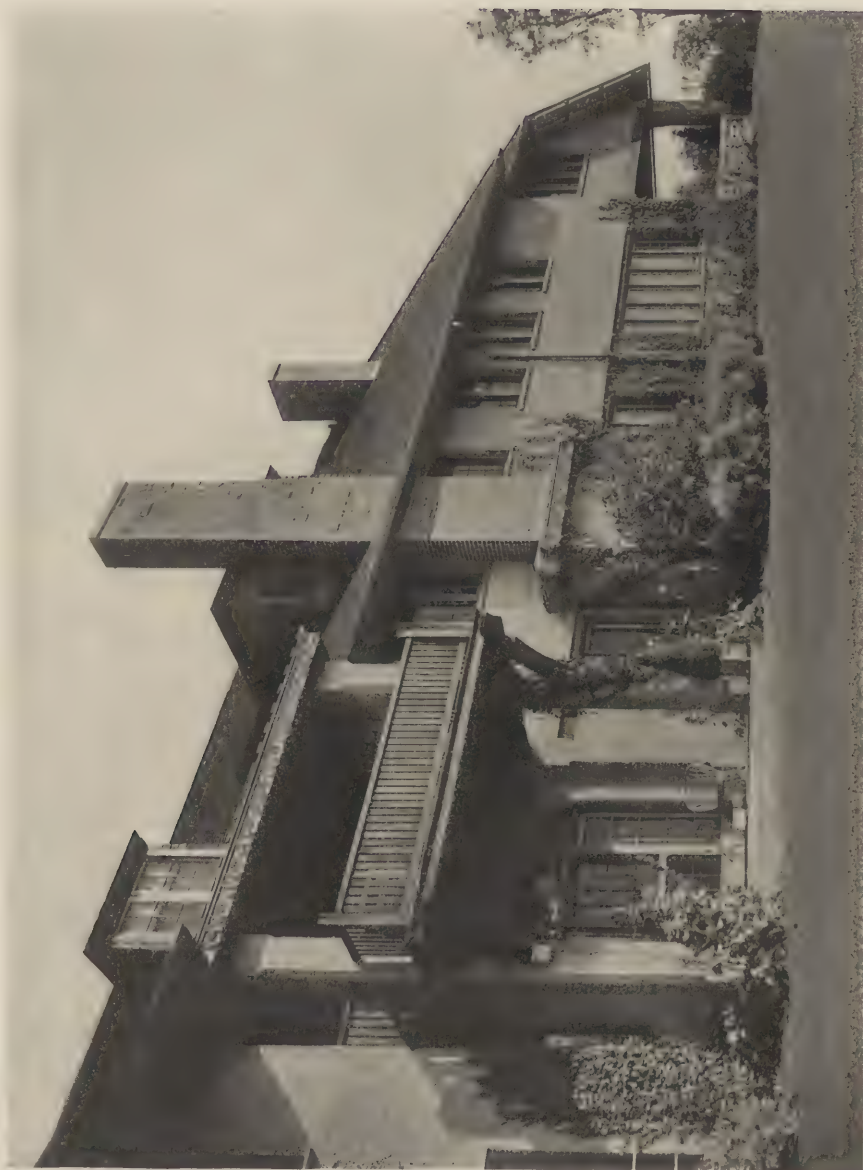
Speaking without regard to "style," as such, in Mr. Shaw's work, but of his mannerism in detailing, an interesting observation as to *scale* might be made. Too often his execution does not keep pace with his idea, or stated in different

terms, it is not that he places a final urn where it does not belong, but rather that he does not always select the right kind of urn. The detail is skilfully appropriate in its relation to the design as a whole, but lacks the proper sort of finesse in itself, which is illustrated in the garden front of the C. H. Hermann house. The garlands in the lunettes of the arches are, theoretically, logical decorations, but give the impression of being out of scale.

There is this to be said, however, of Mr. Shaw's detail, even when it seems most unacademic—that there is a "quaintness" almost approaching, at times, the primitive or archaic. This quality is very noticeable again in the garlands which are introduced above the entrance of the A. H. Marks house—a building which shows, in other respects, far more "manner" than most of the other houses illustrated. How pleasant,



THE HALL, RESIDENCE OF PRENTISS COONLEY, ESQ., LAKE FOREST, ILL.
Howard Shaw, Architect.



DETAIL, RESIDENCE OF HUGH J.
MCBIRNEY, ESQ., LAKE FOREST, ILL.
HOWARD SHAW, ARCHITECT.



AN ENTRANCE DETAIL.
HOWARD SHAW, ARCHITECT.



RESIDENCE OF EDWARD MORRIS, ESQ., CHICAGO, ILL.
Howard Shaw, Architect.



RESIDENCE OF T. E. WILSON, ESQ., CHICAGO, ILL.
Howard Shaw, Architect.



RESIDENCE OF COL. G. W. FRENCH, DAVENPORT, IA.
Howard Shaw, Architect.

for instance, is the rendering of the court-yard, and how well disposed the larger masses of the house.

When Mr. Shaw is engaged in a rendering of an English style, as in the Edward Morris house, there is apparent a more conservative feeling, a regard not only for whatever tradition might be involved in the work in hand, but a greater evidence of a sense of scale. That this English work is sincere there is no doubt, for it often plays an unexpected part in some building otherwise designed in different vein. That Mr. Shaw's renderings of it, however, are always what might be strictly accepted as scholarly, does not follow. It seems unduly obvious to say that a stone porte-cochere would have been more appropriate for the entrance of the Edward Morris house than the glass and iron marquise, and yet the marquise could probably be explained as a concession to some fancy of the owner, for the architect must always occupy a position in which he is at once blamed for vagaries and credited with merits not his own.

If criticism is made of Mr. Shaw's mannerism of detail, however, this cannot, if intelligent, be made unreservedly. Even if much of the detail of those houses illustrated here can be called unstudied, there is much in its freedom and its expression of individuality to commend it, for there is usually more value in originality than in absolute dependence on precedent. Mr. Shaw's detail is admirably just in as far as it is a sincere expression of a sincere belief on his part. There is something in it which seems to vaguely suggest the modern German—a certain fulness of form and certain assurance (sometimes overdone) which characterizes some of the most recent developments of German architecture.

Despite a rather confusing impression, resulting from the apparent diversity of Mr. Shaw's work, as shown here, it will be found upon careful study that, in the main, the architect has adhered with general consistency to certain broad architectural ideas.

His conception of the country house is neither that of an secessionistic eccentric

or of a conservative copyist. Evidently he is primarily concerned in building a dwelling, and he usually succeeds in making it at once livable, dignified and picturesque. Perhaps the basic incompatibility of the dignified and picturesque is reconciled nowhere more successfully than in Mr. Shaw's treatment of the country house. He has frankly recognized it as a problem, accepted it as such, and abided by its limitations no less than he has improved

upon his possibilities. If his conception of dignity does not approach that of Charles A. Platt, it is equally true that his conception of purely picturesque values does not approach that of Wilson Eyre. He treads the middle ground, and, being neither an extremist nor a conservative, succeeds in being individual and fresh in his architectural outlook without being eccentric, and in being something of a student of precedent without being stupid.



RESIDENCE OF R. C. SCHAFFNER, ESQ., HIGHLAND PARK, ILL.
Howard Shaw, Architect.



HOUSE AND GARDEN OF THE LATE W. D. DOUGLAS, ESQ.,
LAKE MINNETONKA, MINN. HOWARD SHAW, ARCHITECT.



THE FORECOURT, RESIDENCE OF THE LATE
W. D. DOUGLAS, ESQ., LAKE MINNETONKA, MINN.
HOWARD SHAW, ARCHITECT.



GARDEN FRONT, RESIDENCE OF THE LATE
W. D. DOUGLAS, ESQ., LAKE MINNETONKA, MINN.
HOWARD SHAW, ARCHITECT.



DINING ROOM, RESIDENCE OF THE LATE
W. D. DOUGLAS, ESQ., LAKE MINNETONKA, MINN.
HOWARD SHAW, ARCHITECT.



RESIDENCE OF C. H. HERMANN, ESQ., GLENCOE, ILL.
HOWARD SHAW, ARCHITECT.



DETAIL OF GARDEN FRONT, RESIDENCE OF
C. H. HERMANN, ESQ., GLENCOE, ILL.
HOWARD SHAW, ARCHITECT.



EMBLEMATIC NORSE FIGURE FOR
THE NEW YORK CUSTOMS HOUSE.
JOHANNES S. GELEERT, SCULPTOR.
CASS GILBERT, ARCHITECT.



A DANISH-AMERICAN SCULPTOR



THE WORK OF JOHANNES S. GELERT

CHARLES HENRY DORR

ONE FEELS the spirit of the Norseland, the courage and resolute will of the north, the songs of the sagas of legendary lore in the majestic figure of the daughter of the Vikings typifying Denmark, which ornaments the United States Custom House, New York, a figure of heroic stature, carved in Tennessee marble by Johannes S. Gelert, and an imposing example of this Danish-American sculptor's art.

There is something more than marble in this robust figure of the Norseland, clad in the mediæval costume of the period, about the year 1000 and clasping a boat hook of the Vikings in her hand. It reflects the indomitable heroism and virile character of the hardy northlanders, this Viking's daughter. It also reveals the sculptor's inclination toward interpreting the Norse mythology, while the lines of beauty suggest the student of Thorwaldsen.

In his boyhood days, Johannes Gelert, the son of Ludwig Christian Frederick Gelert, Court Jeweler to Emperor Dom Pedro, of Brazil, thought he heard the call of the sea, and went to Copenhagen from his native town of Nybel in Denmark, which is now a province of Prussia. Wandering about the docks of Copenhagen he endeavored to find a berth on board ship, but he did not encounter any captain who encouraged his ambitions to become a sailor.

So he happened to meet a wood carver in the Danish city, who gave him employment, and the young Dane, who wanted to be a sailor became so interested in wood carving and modeling in clay that he forgot the call of the sea and continued the craft of wood-carving for some four years and in his spare time studied art in the Royal Academy at Copenhagen. Thus he began his career in the pursuit of art and while a



CARYATID FIGURE.
Johannes S. Gelert, Sculptor.

student in Copenhagen he was commissioned to decorate one of the theatres in that city, and executed a series of decorative figures representing the history of music. His first important commission soon followed after receiving medals at the Danish Academy, and he went to Paris, where he exhibited in

the Salon a colossal group in sculpture representing the god Thor of Norse mythology, which attracted much favorable attention.

He was then chosen to execute a series of decorations for the Palace Trocadero in Paris, and afterwards returned to his home city of Copenhagen.

In 1882 he received a scholarship from the Danish Government, and visited Rome, where he continued his study of art and occasionally completed an example of sculpture.

While in Rome he modelled a group of sculpture, which he called "The Little Architect," a work not unlike a tale of Hans Christian Andersen. Here, carved in marble, are two little children at play, and "The Little Architect" is about to transform a mound of sand with his wand into a castle, a fanciful theme, and invested with the spirit of childhood by the sculptor. Later the group was exhibited at the Philadelphia Art Club, where "The Little Architect" received a gold medal, and the Committee on Selection chose the piece of sculpture for representation at the Paris Exposition.

In 1887 Gelert sailed for America and upon his arrival in this country called at the studios of Augustus St. Gaudens and J. Q. A. Ward, but much to his surprise both of these distinguished sculptors were away from town for the summer, something unheard of in Denmark.

Then the Danish artist proceeded to Philadelphia and Boston and finally arrived in Chicago, where, by chance, he met a fellow countryman, who informed him of the proposed Haymarket monument, planned for that city.

Gelert was finally awarded the commission and at the World's Columbian Exposition was not only represented by important examples of his sculpture, but was also appointed a member of the International Jury of Award.

His statue of "Neptune" was exhibited in the Court of Honor, and his dramatic group, "The Struggle for Work," an emotional portrayal of the strife in the field of labor—also met with wide popular approval.

In the semi-classical figure of "Gothic Art," which was carved in Indiana lime-

stone for the Museum of Fine Arts, St. Louis (the building by Cass Gilbert) is an example of beauty and rhythm of line and subtle modelling.

It is a graceful figure, this maiden of Gothic Art, who is clasping in one arm the model of an ancient shrine, presumably enclosing a relic from some far-away clime, and withal revealing a classic note in the art of the sculptor.

This figure ornaments the portals of the Fine Arts Museum in the Missouri metropolis, where it stands symbolical of the art of bygone ages.

Often the arrangement of the drapery enveloping a figure enhances the expression, and, for instance, this effect is revealed in the life-size figure of "Intercession," which was designed for a tomb in Perth Amboy, New Jersey. Although an early commission, it illustrates the sculptor's skill in the modelling of the figure, the expression of appeal, which is accentuated by the folds of the drapery. The figure was designed for Mr. E. V. Ekesen, a fellow countryman of the artist, and is in terra cotta.

Another figure designed for a tomb is the Caryatid, which is executed in light gray granite and mounted on a pedestal, with the inscription "Hope." The figure, which is one of a series of four made for the Furman family, of Nashville, Tennessee, is holding a flower bud in the left hand, symbolical of hope. These Caryatids are supporting a canopy over the sarcophagus.

At the Nashville Centennial Exposition, the South honored the Danish sculptor by awarding him a gold medal for his figure of "A Wounded American Soldier." The model for this soldierly figure was the son of a well-known American General, who participated in the Civil War. It is an extremely effective composition, natural in pose and withal suggests a modern antique.

On the western façade of the Brooklyn Institute of Arts and Sciences, designed by McKim, Mead and White, are four colossal figures typifying Roman civilization, by Johannes Gelert, and comparatively recent examples of his art.



ROMAN ORATOR, FOR THE BROOKLYN INSTITUTE OF ARTS AND SCIENCES.

Johannes S. Gelert, Sculptor.

McKim, Mead and White, Architects.

Here stand the figures of Augustus, a classic type of the Roman period; Justinian in Byzantine costume, and carrying a book of historic days; Julius Caesar, the Roman Statesman, and Cicero, the Roman orator, who stands with scroll in one hand, perchance the manuscript of some famous oration, a souvenir of the intellectual prowess of Roman civilization.

All of these figures were designed by



THE EMPEROR AUGUSTUS AND THE
ORATOR CICERO, FOR THE BROOKLYN
INSTITUTE OF ARTS AND SCIENCES.
JOHANNES S. GELERT, SCULPTOR.
McKIM, MEAD AND WHITE, ARCHITECTS.

the sculptor to conform to the architecture of the Brooklyn Institute of Arts and Sciences and to harmonize with the architectural lines of the edifice. The modelling of the figure of Augustus is skillful, and the ornamentation of the cuirass worn by the Roman reveals an original design by the sculptor.

It may be interesting to note here that the late Francis D. Millet, the



"INTERCESSION," FIGURE FOR A MAUSOLEUM.

Johannes S. Gelert, Sculptor.



"GOTHIC ART," AN ALLEGORICAL FIGURE.

Johannes S. Gelert, Sculptor.

American artist, loaned several togas from his collection to the sculptor while he was engaged in modelling the figures of Julius Caesar and Cicero.

"To model in clay is only child's play, but to get a commission is a hard proposition" is the title of a fanciful vignette in the sculptor's studio. It portrays two children who are engaged in modelling the classic head of a goddess of tradition. Alluring is this conceit of the sculptor, which again reveals the versatility of his art, and also illustrates, in a serio-humorous vein, a truth known to almost every artist.

Another series of sketches expressing the joyousness of childhood include several figures of the sculptor's children.

These original studies show a group of children at play in a variety of interesting poses. One of the little figurines in the series was appreciated abroad, for it was secured by the Art Society of Copenhagen.

Among the numerous designs of interest in the sculptor's studio are sketches and studies in preliminary stage appropriate for city parks or municipal buildings. One of these is a model for a colossal dual fountain, symbolical in theme and set in a Roman pergola.

Mounted on his fleet-winged Pegasus, Apollo stands with lute in hand, riding over a huge boulder, and grouped around the rock of Helicon are the figures of the nine muses and the graces. Here may be noted Terpsichore, Melpomene, Cleo and Euterpe attired in flowing Grecian costumes, picturesque figures in this ornamental design for a classic fountain.

A battle between the gods of the Norseland and the monsters of antiquity forms a mythological theme portrayed in a bas-relief, another study noted in the atelier of the sculptor.

"Westward the star of empire takes its way," and in the west the art of Gelert is represented by several notable examples of this Danish sculptor.

In Lincoln Park, Chicago, is Gelert's seated figure of Hans Christian Ander-

sen, a countryman of the artist. The celebrated author of fairy romances being depicted with a tablet and pencil, and near by is the "Ugly Duckling," suggested by one of the Danish writer's creations.

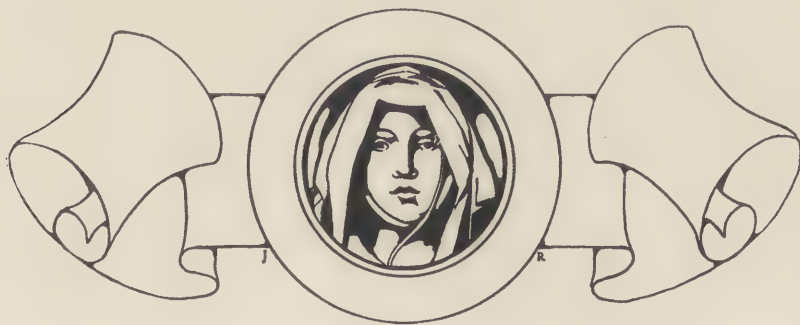
There is a similarity in a way between these two Danes, the author and the sculptor. Judged by a number of his juvenile subjects, his statuettes of children for which he has a penchant. Gelert might be called the Andersen in the realm of sculpture.

Aside from the Andersen statue, Gelert is also represented in Lincoln Park by a large bust of Beethoven.

Among other examples of the sculptor's work in portraiture is a bust in marble of the distinguished journalist, Joseph Medill, the late editor and publisher of the Chicago Tribune.

Another interesting example of portrait statuary is the heroic figure of General U. S. Grant, which stands in Galena, Illinois, the home of the national hero before and after the Civil War. Veterans of the great conflict between the North and South declare this statue to be a most intimate likeness of the illustrious soldier.

A statuette of a hero of another nationality is of the Greek Theseus, which was awarded a gold medal in Philadelphia. It portrays the Greek hero asking for the hand of Ariadne, and was included in the sculpture exhibit at the recent Winter Academy.





THE SOUTH PARLOR, MEDINAH TEMPLE, CHICAGO, ILL.
Huehl and Schmid, Architects.

EASTERN ARCHITECTURE IN THE WEST MEDINAH TEMPLE IN CHICAGO, ILL.

HUEHL & SCHMID
 ARCHITECTS

BY J. E. MURPHY

[After January 1st, 1913, Huehl, Schmid and Holmes.]

IN THE NEW Medinah Temple recently, erected for the Masonic order of the Mystic Shrine in Chicago, is found one of those rare instances in which a building designed in a historical style remote from our twentieth-century civilization and ideals seems logical and in harmony with its surroundings. This result, no doubt, is due in part to the restraint and artistic balance manifested in the use of architectural and decorative detail, and in part to the peculiar requirements of the Shrine order, requirements that it was necessary to observe in any event.

Arabic design runs easily into exuberance while buildings of the Arabic period are, more often than not, characterized by a lack of organic perfection, and are illogical structurally. In the excellence of its plan and construction the Medinah Temple is thoroughly modern, while the Arabic elements are so woven into the design as to become an integral part of it. This building is, in fact, a modern structure, with Arabic decorative expression, just as the Shrine itself is an organization modern in its ideals, but possessing an Arabic ritual.



MEDINAH TEMPLE, CHICAGO, ILL.
HUEHL AND SCHMID, ARCHITECTS.

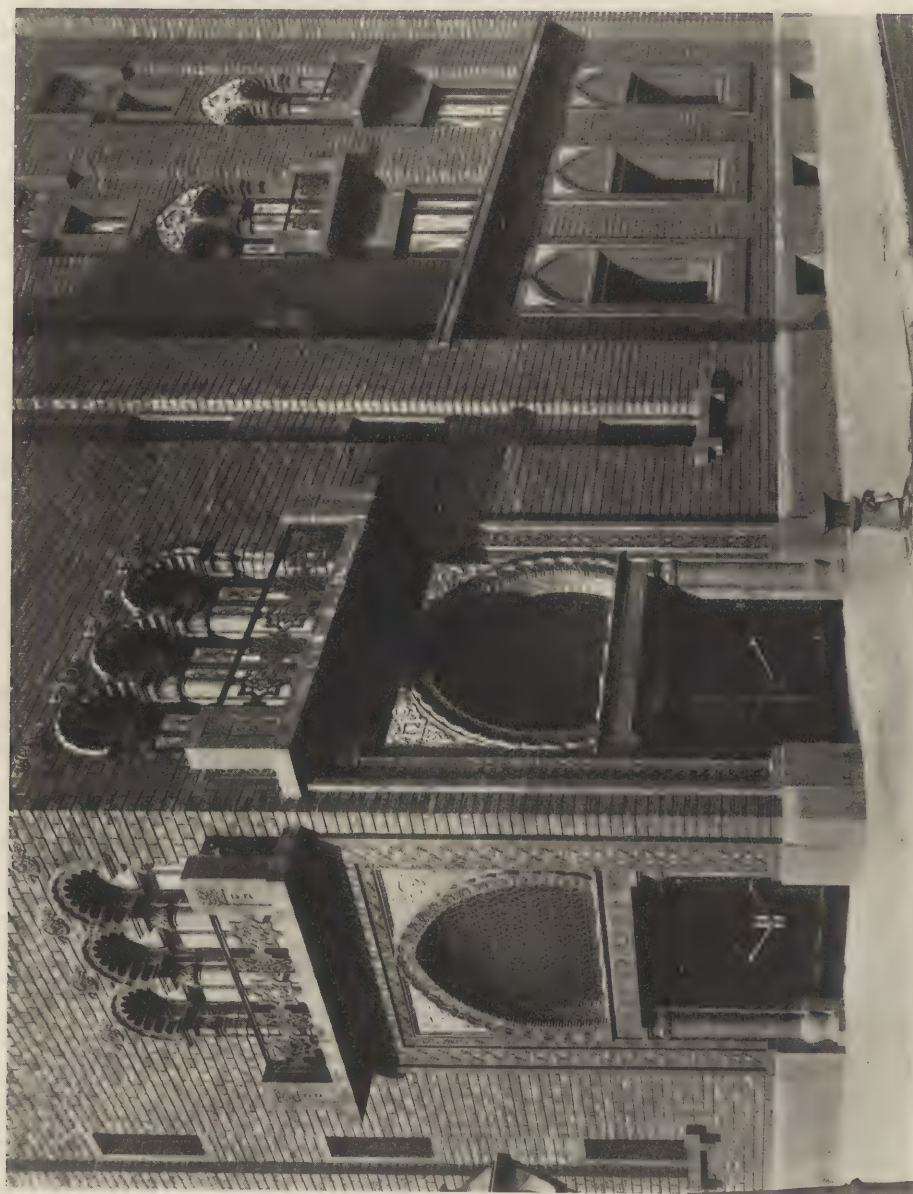
The ground area covered by the building is an even half block, or, to be exact, 218 feet north and south by 150 feet east and west. The main entrance is on Cass street. With the exception of the basement, the greater part of the space, probably 90 per cent, is utilized for the auditorium, the largest and most impressive in the West. The seating capacity of this auditorium, forty-two hundred, is misleading as to the true dimensions, since a large amount of seating capacity is lost through the extension of the stage beyond the proscenium for a distance of about fifty feet, and from the fact that the seating system of the main floor does not extend under the balcony. This form of stage is required for the classes and entertainments of the Shrine, while the space under the balcony is reserved for checking rooms and parlors. With the stage and the main floor seating arranged as in an ordinary theatre, this auditorium would have a seating capacity of over seven thousand. The various rooms required for the business of the Shrine are ingeniously grouped along the borders and in the corners of the building. The basement is utilized as a banquet hall, with a seating capacity of twenty-three hundred.

In considering the architectural and decorative treatment of this building, it is well to bear in mind that some features necessarily occur that are important to members of this secret order, but are not of special significance to others. It is believed that no member of the Shrine, or that no layman, for that matter, who knows something of the ideals of this order, would ever mistake the building for other than what it is. At the same time the building is in harmony with its surroundings. The noting of two such facts as these is, in a way, commendation as great as can be given any architectural design. In general effect, the exterior is brown, the color of the brick and most of the terra cotta. But monotony of color is effectively avoided by the use of red, yellow, blue, white and gold, applied with the boldness characteristic of Arabic design. All forms of arch common to Mahometan architecture—the semicircular, horseshoe, pointed and

keel—are employed in the exterior. At all the entrances the horseshoe arch,



DETAIL OF CORNER ENTRANCE AND
BALCONY, MEDINAH TEMPLE,
CHICAGO, ILL.
Huehl and Schmid, Architects.



DETAIL OF CORNER ENTRANCES AND BAL-
CONIES, MEDINAH TEMPLE, CHICAGO, ILL.
HUEHL AND SCHMID, ARCHITECTS.



MAIN ENTRANCE AND TOWER, MEDINAH TEMPLE, CHICAGO, ILL.
Huehl and Schmid, Architects.

slightly pointed, is used. The historic Arabic inscription, "There is no God but Allah," repeated as an ornament, forms a border around the rectangle of the main entrance. This inscription is in the Italic Arabic characters, and is copied from the Alhambra. Aside from this inscription there is no actual copying in the entire building, the decoration and ornament being worked out in the spirit of Arabic design, rather than in direct imitation of it. The decorative details of the exterior are of terra cotta, in standard finish, with the exception of the

inscription, which is white enameled terra cotta.

The general form of the building is rectangular to the second-floor level. Above this level the outline, exclusive of the towers, follows the curved form of the auditorium, eliminating floor space, for which there is no specific need, and adding to the picturesque effect of the exterior. It will be noted that, contrary to the most common Arabic precedents, there is no wall decoration, the decorative treatment being confined to entrances, windows, cornices and domes.

At the same time, the exterior, as a whole, is rich in decorative effect, while there is a decided decorative value even in the blank wall spaces. The latter feature is evidently due to the modified form of Flemish bond used in the brick work. In this form of bond the brick are laid in "four-to-one" units, each stretcher consisting of four ordinary brick, and each header of two brick of the ordinary cross-section but sixteen inches in length. The units are formed with close joints, and are separated by joints three-quarters of an inch in thickness. The corner domes have pointed-arch sections. They are formed of terra-cotta panels, wrought in elaborate Arabesques, and supported on curved steel ribs.

The principal feature of the building is the auditorium, all other parts being subordinate to this. It is, therefore, in the auditorium that the most important

features in plan and decorative effect are to be found. In an interior of this size—a block long and nearly half a block in width from the proscenium to the east wall—with a ceiling fifty feet above floor level, and supported by only two visible columns—with a bare stage projecting far into the seating area—a barnlike effect might easily result. This interior, on the contrary, produces an effect both of compactness and spaciousness. Aside from three dominant features—the heavily beamed ceiling, the domes and the mural painting over the proscenium—the decoration is simple, consisting mainly of slender borders, cornerpieces in the wall and ceiling panels, and a somewhat elaborate border in bas relief around the rectangles of the proscenium.

The beaming of the ceiling gives a wealth of detail to what would otherwise be a dead expanse of surface, and, what is of equal importance, it expresses



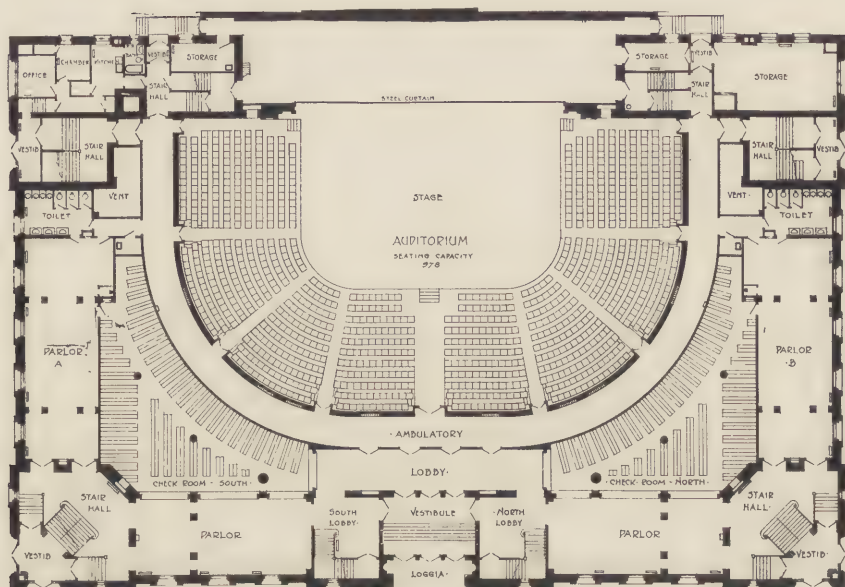
INTERIOR OF THE AUDITORIUM, MEDINAH TEMPLE, CHICAGO, ILL.
Huehl and Schmid, Architects.



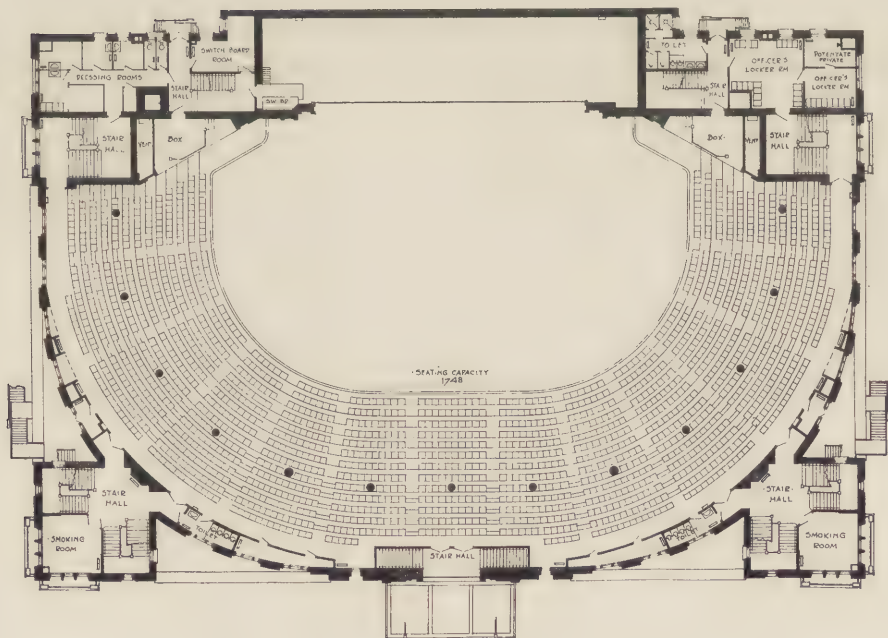
CORNER TOWER, MEDINAH TEMPLE, CHICAGO, ILL.
Huehl and Schmid, Architects.

structure in such a way that no one who gives thought to such matters could be mistaken as to the form of construction of this ceiling. This construction consists of a system of steel trusses, between which are framed secondary trusses and girders. The exact location of each truss

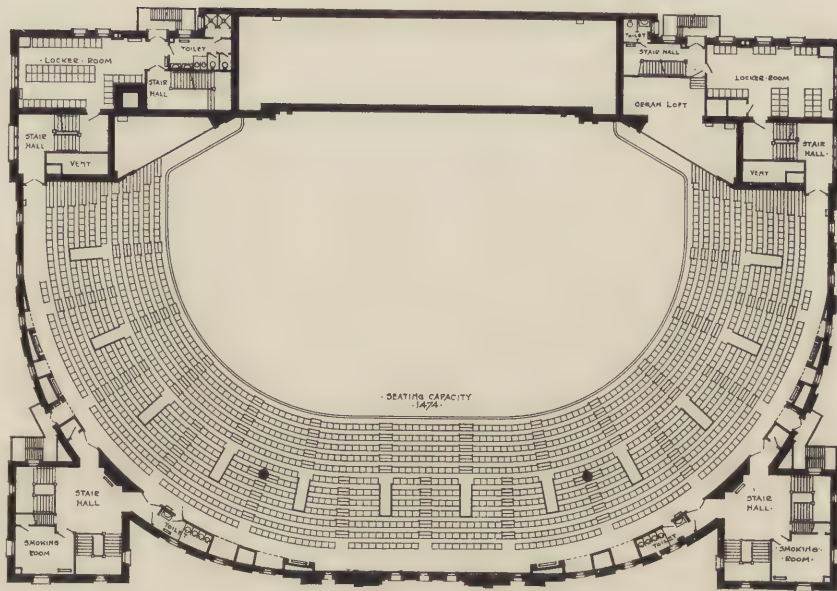
and its function in the structure is easily followed in the beaming. A truss having a span of $92\frac{1}{2}$ feet extends from each column to a support in the proscenium wall, while a similar truss connect the two columns. These trusses furnish primary support for the central portion of



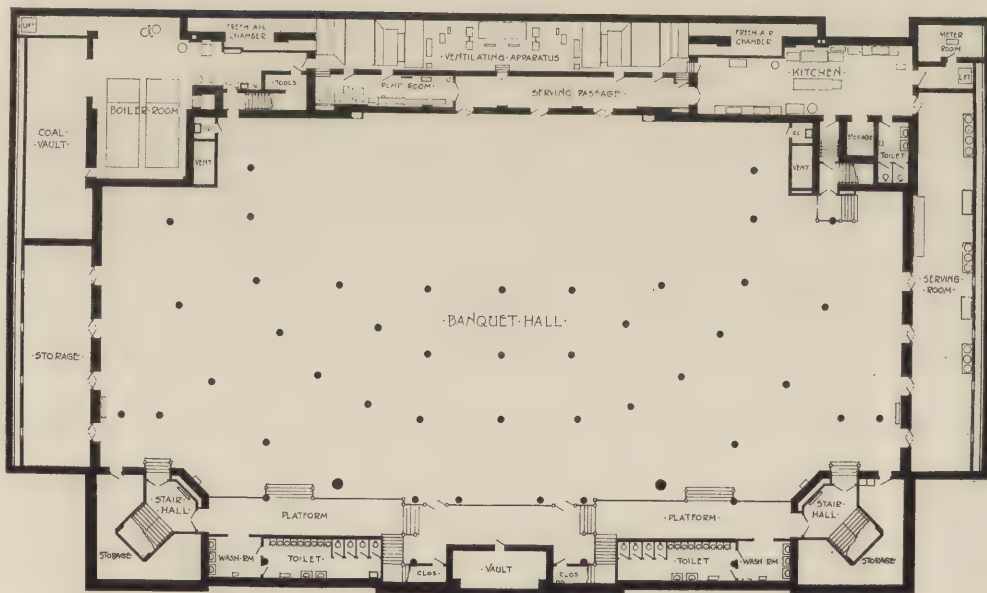
MAIN FLOOR PLAN, MEDINAH TEMPLE, CHICAGO, ILL.
Huehl and Schmid, Architects.



BALCONY PLAN, MEDINAH TEMPLE, CHICAGO, ILL.
Huehl and Schmid, Architects.



GALLERY PLAN, MEDINAH TEMPLE, CHICAGO, ILL.
Huehl and Schmid, Architects.



BASEMENT PLAN, MEDINAH TEMPLE, CHICAGO, ILL.
Huehl and Schmid, Architects.



DETAIL OF ENTRANCE ON OHIO STREET, MEDINAH TEMPLE, CHICAGO, ILL.
Huehl and Schmid, Architects.

the ceiling. The columns are of reinforced concrete.

The central dome is the most striking feature of the entire building, and is an object of rare beauty when illuminated by the chandelier, twelve feet in diam-

eter, suspended from its center. This dome has an inner and outer shell, with an inside diameter of fifty feet. It is supported on curved steel trusses, each truss being nine feet deep at the ceiling line and three feet deep at the crown of

the dome. Here again, in the visible ribs of the dome, is found an unmistakable expression of structure. These ribs carry no ornament, and thus serve to emphasize the rich decoration of the included panels. The decorative value of the dome is still further enhanced by the stained glass windows, in green, red and gold, with which each of the panels is pierced. As is usual in large auditoriums, artificial lighting is depended on for illumination, the windows being designed more for decorative effect than for illuminating purposes. In addition to the chandelier suspended from the central dome, each of the other domes carries a smaller chandelier, while a cluster of lights is placed in the center of each ceiling panel.

The requirement of the Mahometan creed prohibiting the representation, even conventionalized, of human or animal forms, is rigidly observed in all parts of

the building except in the parlors and smoking rooms. The effect sought in these rooms is one of quiet and repose. Brown and green are the dominant notes in the color scheme. In the north parlors the floors are of brown and white tile, the wainscoting is light brown, and the hangings are green.

The entire building, with the exception of the slight digression noted in the parlors, is carried out consistently in the Arabic style, a style as far removed from present-day requirements as could well be imagined. In spite of this fact the design carries with it the conviction that it is the logical solution of this particular problem. The building is composed of permanent materials throughout. A quality worthy of particular note is the honesty observed in the use of materials, all the brick, terra-cotta and concrete being frankly such, and not imitations of some other material.



THE NORTHEAST PARLOR, MEDINAH TEMPLE, CHICAGO, ILL.
Huehl and Schmid, Architects.



ENTRANCE DETAIL OF A HOUSE AT
OAK PARK, SHOWING A REASONABLE
MAXIMUM OVERHANG FOR EAVES.
(See illustration on page 354.)

BUILDING the HOUSE of MODERATE COST

The Seventh
Article



By Robert C. Spencer,
F.A.I.A.

THE ROOF.

THREE FACTORS determine the appearance of your roof—*design, color and texture.*

If the first is not good, no degree of beauty in the two latter can save you.

Now that we are assured that architects—even the busiest ones—*do* read, here's hoping that these lines may be read by some of the fellows who are careless above the eaves-line, and, judging from the cuts in the architectural journals, there are a good many of them.

The roof is eminently a characteristic and cardinal feature of domestic architecture. A study of the "Orders" may teach you a better sense of scale and proportion, but it stops at the roof.

In large monumental work, good simple roofing usually follows from the necessary symmetry and balance of the plan:

But these houses, with their bays, dormers, porches and attic rooms, are quite another sort of problem

The house must be comfortable and "homey"—not too hard and arrogant in its feeling, and these former qualities can seldom be provided in a strictly formal and regular plan.

Yet the ground plan outline—excepting in its minor features—determines the roof plan, and, therefore, the roof lines and surfaces, while these in turn go far

toward making or marring the mass of the house viewed as a whole.

In making plan studies for a house of any size, above that readily covered by a box-shaped and plain lidded scheme, every conscientious designer rejects otherwise perfectly good floor arrangements because they lead to fussy, forced or awkward looking roofs.

The square, or *almost* square type of house, he finds to be peculiarly difficult in its total mass.

As a covering for such a plan he finds a hip roof too nearly pyramidal without any ridge line worth mentioning.

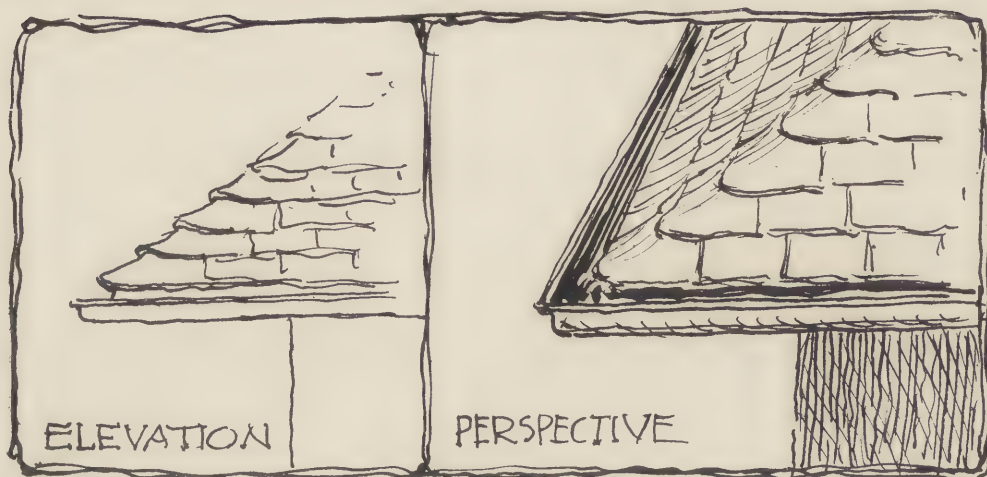
His only salvation, and this is often but partial, lies in adopting a plain gabled treatment with a ridge line that counts toward ameliorating the boxiness of his mass.

In houses large enough to have a de-

cidently dominant longitudinal dimension, either of two paths may be chosen, as to design. The roof may be hipped or gabled, and from either path he may follow various related bypaths as to pitch, projection of eaves and the details of their treatment. Usually his roof must be more or less mussed up with dormers, the bane of American domestic architecture, yet apparently a necessary evil, at least in houses of the smaller and more economical type.



So-called "jerken-head" type of gable roof derived from old thatched form. An illogical variation of the simple gable, but sometimes rather effective, and a protection to the upper gable windows.



TWO ROUGH SKETCHES SHOWING MOULDED HIPs ON A "SHINGLE" TILE ROOF,
(1) IN ELEVATION, (2) IN PERSPECTIVE.

As a troublesome feature of roof design, these will be discussed later.

If there must be finished rooms in the attic, or roof space, a gabled type of roof is usually indicated at the outset for adequate light and air.

It is, however, true that a hipped roofed scheme when of rather broad and generous dimensions may be dormered quietly and sufficiently for cross-draught in attic servants' quarters.

So, there can be no hard and fast practical rule to guide one's choice of the first two paths.

Often it is a question of personal predilection and feeling; of the look which one desires to give his building in relation to its site and environment.

Broadly, hip roofing, with its continuously level eaves line is the serene and quiet scheme. With umbrageous eaves, it is reminiscent of Italy and Spain, until too sharp in pitch as adopted when it becomes heavy-looking and cries for gables, or for a flattening of pitch at the eaves to emphasize the feeling that the main rafters rest solidly upon the supporting walls.

In the French *chateaux* of the best Gothic and early Renaissance periods, this change of pitch was always exquisitely given, albeit the overhang of eaves was modestly and trimly Northern, suggesting cloud and snow, rather than sunshine and rain, as do the spreading eaves of Italy.

In general, roofs of steep pitch suggest eaves of very moderate projection.

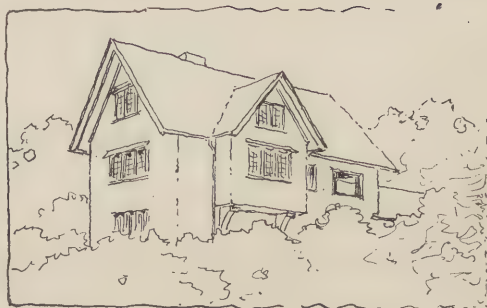
At the present time, we seem to be going in rather strongly for roofs of low or moderate pitch with eaves which are wide, often to the point of exaggeration. In this pursuit of heavy shadow, some designers apparently forget that bed rooms as habitable apartments need a certain amount of direct sunlight.

For the average house, a roof overhang of three to four feet will give ample shade and shadow during the heat of a summer's day and cover small bays or other minor offsets in the plan while allowing a fair measure of morning and afternoon sunshine to enter directly.

Hipped roofs seldom take kindly to a very irregular or broken plan. But where gables serve to open up attic space, a projecting unit in the plan is often valuable, if properly subordinated to the principal mass.

A gable, secondary to the main roof, which does not correspond to a break in the plan, however slight, always has a rather forced, awkward and illogical appearance. Yet, it is a common feature of carpenter-built houses and of some others.

But carpenter builders are, alas, not the only sinners against good roof design. Unity and harmony are recognized by the good workman as among the first governing laws of every art, however variously he may interpret them, or even



An awkward gable roof lacking preparation in the second floor plan for the cross-gable on the side, which is too large in proportion. The sketch shows a better treatment.

seem to violate them in his creative work.

If he be not a genius, his harmonies should be simple and obvious rather than occult or Wagnerian, verging upon discord.

There is in one of our great cities a large group of modern college buildings designed on Gothic lines, several of which are object lessons in inharmonious roofing. Hips and gables quarrel with each other upon the same building and the roofs of one building quarrel with another. Only a uniformity of material and a general similarity of pitch hold them in any semblance of good order.

Better flat roofs above an attic story than such a jarring striving for the picturesque.



Eaves rather too wide and heavy, and the roof marred by the large central dormer.

A not uncommon type of roof, which to the writer, is always awkward and stupid in appearance and which is seldom justified by practical consideration is the truncated roof with a flat central deck.

Happily the Mansard roofed cottage is a thing of the past, but American Colonial traditions have such lasting force in our domestic architecture that many homes are still being built with central railed decks. (The "Cupola" period, thank goodness, was short lived.) They remind me of a criticism made by the late Prof. Eugene Létang upon a design for a monumental entrance to a park by a member of the second-year class in design at "Tech" some twenty odd years



The use of a gambrel roof above two full stories gives a heavy and barn-like effect, even if the house (unlike the illustration) is well designed in itself.



A clumsy and over-eaved dormer effect common in many American suburbs. It is a type of "real estate" house, built to sell.

ago, a feature of which was a crowning balustrade. If any of the company of successful architects, who had in those days, the good fortune to be under his instruction, chances to read this, they can supply the sarcastic tone and peculiar French accent with which he ejaculated as he turned to this design: Ha!—this fellow has a bal-us-trade! Who goes there? *No body.*"

And thus it is with the balustraded, new—Colonial roof—nobody goes there.

And the puny wooded balustrade catches and holds the snow, the joints open and the wood goes to decay.

Dormers have been already referred to as a necessary evil. They are not always

ness which are not plainly outside the pale of esthetic law.

Most offences in roofing can be set down in words so that even the interested layman can open his eyes, and see in daily walks what to condemn and what to praise—what to avoid when he builds.

The heavy-eaved, exaggerated dormer. It is one of a large Company in the "solid mahogany" village of Oak Park, and there speak a lot of Oak Parks architecturally remote from Cook County, Ill.

Most of these dormers are planted in the center of pyramidal hipped roofs and are gabled.

Harmony demands that *all* roofs, large and small, major and minor, be of one



A house by Spencer and Powers at Oak Park, Ill., showing a reasonable maximum for the overhang of eaves. Roofed with light red shingle tiles and moulded hips. The main roof has a pitch of 5 in 8, and a maximum overhang of about four feet.

so. It is true they distort the quiet simplicity of a good roof. But when well placed and designed, they often add to it a touch of interest and piquancy.

It has seemed hardly necessary to illustrate here with photographs the characteristically bad types of roofs and dormers. They are abundant in every suburb from Boston to San Francisco, and their variety is exceeding.

They break the laws of unity and harmony, in many and various ways, and it is oftener easier to say that they do not please the eye, than to say just why.

These are shades of architectural bad-

family on one building. *All* hips or *all* gables.

An artist can depart from this rule in certain cases without producing an unpleasant discord in his mass composition, but it is always well for him to hesitate. Small dormers which repeat against a rather ample background of roof surface may be either flat topped, hipped or gabled—regardless of the treatment of the main roof, particularly if the latter be of sufficient pitch to rise above the dormer skyline, except at very close range.

Of course, it *does* really seem almost

absurd to attempt to design or to advise another to design by *rule*, when the only rules which can be formulated in any field of art are subject to more exceptions than rules for the spelling and pronunciation of the English language.

But, nevertheless, occasional sad lapses on the part of well-known architects of acknowledged artistic power show the value of a good general rule in case of doubt.

Mistakes or weaknesses in mass composition and roof design not readily detected in elevations, are usually disclosed at once in a mathematically correct perspective study.

wishes to design in a perspective study that which can be translated back into working drawings, and when mastered through frequent use, it is at least as rapid as any other.

But to return to the roof.

A roof, let us say, over a good spacious attic, lighted by gable end and dormer windows.

What do you require of the dormers? Light, cross draught, and, in the attic, bed room elbow room at least, and perhaps space for a dresser or a writing desk, with a clear height enough for head room and a trifle to spare.

The smaller and less conspicuous the



A shingle roof with close-trimmed gable end, and eaves carried across it to accentuate the low horizontal lines of the cottage. The hip-roofed dormers are inconspicuous against the rather steep roof.

Rough free-hand perspective sketches are of comparatively little value as a check upon composition in plan and elevation of houses, or building of any type in which the roof is an important and conspicuous feature.

One always "fakes" these sketches—though perhaps unconsciously, to please his fancy as to the look of his building, and the broadest faking or the widest margin of freehand inaccuracy is in the roof.

With an accurate perspective, one can go back to his sketch elevations and correct them or discard before going too far with a mediocre scheme.

So I say to the young architect: get the habit of studying your work in accurate perspective. The perspective plan method is the most convenient where one

dormers the quieter and more restful the roof as a whole.

With a minimum height for practical use window sills set well up from the floor and an inconspicuous roof of its own, the scale of your dormers for the house of moderate cost will take care of itself. And at *least two* dormers on one side of a roof, unless set closely together, are better than one.

If several attic windows must be had close together, one broad single dormer is better than a crowded effect, both structurally, as well as in appearance.

For the small house, flat-topped metal decked dormers are, as a rule, less conspicuous in scale and close-range skyline than those with pitched roofs. This type of dormer is common in modern English domestic work.

In our own work we often see much striving for the cleverly odd or picturesque in dormers and dormer roofs. It is only in the small house of the "story and a half cottage type" with its rather steep roof and low eaves line that aggressively picturesque dormers may be rather effective, and a virtue thereby made of their importance in the plan of the bed room floor. So much for form.



The masonry character of a stucco coated house of hollow tile is emphasized by the substitution of tile coped gable ends for overhanging verges.

What of color and texture? A bird's-eye view of a close-built typical American village or suburb, discloses a sad gray patchwork of roofs, unrelieved by cheerful color, except for a bit of lively but foreshortened wall here and there.

How different the warm ruddy roofing of a typical English or German town. Cheap lumber has deprived us largely hitherto of color as a beautifier of our roofs.

Not that shingled roof always lacks beauty of color to the extent that neutral tones are colors.

Artists delight in the cool, delicately dappled and undulating textured roofs bleached by the salt air of clean sea-port houses.

But inland where smoke and soot from railway lines and factories is added to the darkening effects of sun, snow and rain, a shingled roof acquires in a few years at most a sad, dirty, gray tone, gradually approaching a cracked, warped, decayed and blackened end at the early age of from ten to fifteen years. And the average of quality in shingles as in all other kinds of lumber is steadily becoming lower, as scarcity grows.

Cheapness in first-cost, however, will undoubtedly favor the general use of shingles for roofing in preference to more durable and beautiful materials for many years.

To the man who takes pride in building substantially and permanently, we can at least, however, safely say: "A tile roof with copper flashings will cost you about three times as much as a good shingled roof, and will last, with trifling repairs as long as the structure which it covers.

"If you and yours own this house with a tiled roof for over thirty years, it will cost you no more than the maintenance and repeated replacement of shingles during the same period. And during all these years, you will have a roof not only beautiful when new, but which in color and texture will grow richer, mellow and more pleasantly varied in tone and color every year."

And then, there is the solid satisfaction of feeling that you have a permanent weather and fire resisting covering over head.

A shingled roof, carefully painted a bright red may look like a tile roof at a considerable distance. But it does not deceive at close range, it must be re-



Doubling the shingles every seventh course gives a rather agreeable horizontal texture to a shingle roof.

painted every few years, and the owner *knows* that it is merely a cheap imitation.

It is true that paint somewhat protects the surface of shingles from cracking and warping, but it encourages decay from below, by closing the pores of the wood and preventing quick drying after exposure to rain or snow.

But, some one says: "If a shingle roof isn't good enough (cost, wear and looks, all considered) for a modern house of moderate size, why is a tile roof the only alternative? What about slate or asbestos shingles, or good tin, or even the various patented felt and paper roofings so extensively advertised?" The answer is not simple. Slate costs less than tile, is almost if not quite as durable, quality for quality and can be had in shades that are very satisfactory and agreeable if you don't care for red.

The red of slate is generally inferior to tile reds.

The various lighter slate grays, dull bluish-purplish and gray-green tones, may be effectually used by careful selection and judicious mixture where quiet, unobtrusive roof tone is desired.

The darker slates are rather cold and funereal looking, for a house, unless the roofs be of low pitch and, therefore, inconspicuous. Like tiles they ripen and mellow with years of exposure to the elements. Give them time enough in a fairly moist climate, say fifty or sixty years and with touches of moss and lichen in shaded surfaces, they may become delightfully soft, rich and colorful.

To appreciate the mature beauties of such permanent roof coverings as slate and tile, one must travel the unspoiled byways of Europe.

In America most of our more substantial construction is too rawly modern.

But we *are* beginning to build for our great grandchildren, or at least for some one's great grandchildren—to build houses durable enough to grow old gracefully.

All the modern so-called cheaper and better substitutes for shingles have their uses and advantages for certain classes of buildings or under peculiar climatic conditions.

None of them are really time-tested in comparison with tile or slate. Some have outlasted shingles, as for example, the so-called asbestos shingles, made of short fibre or amorphous asbestos and cement under enormous pressure.

All felts and papers no matter how impregnated appear to have a tendency to swell and buckle more or less with vary-



The gable of good pitch is particularly domestic in quality, and is always "indicated" where much finished attic space is wanted.

ing degree of moisture and temperature.

Architects are skeptical about them for domestic work and speculative builders of small houses and bungalows, who are always looking for "something cheaper and just as good," or something better at the price of shingles and are doing most of the practical experimental work in trying out the inexpensive substitutes.

In discussing and illustrating such roofing details as gutters, eaves, verge boards, etc., this article might be indefinitely extended, but there are so many practical and pleasing ways in which they can be designated and such a wide diversity of taste among architects that perhaps it is just as well to omit consideration of these points entirely from this article. In closing, however, it seems well worth while in view of the various different forms in which roofing tiles and tile trimmings for hips and ridges are made to discuss briefly their application to residence work.

Excepting perhaps for very large, unbroken roofs of rather low pitch, the so-called flat shingle tile seem to be in

better taste than the coarse interlocking or so-called Spanish patterns. The latter have a more or less heavy, coarse and brutal effect which seems somewhat out of key with the quiet domestic quality for which we look in a small house.

Properly laid, shingle tile is quite as tight and durable as any other form.

Quite as important as the choice of tile as to shape is the selection of tile for good color. The lighter, softer shade tones are more pleasing than the dark tones of very hard-burned clay. Tile may be had in these lighter tones which are quite hard enough for permanent durability.

It is a common and serious mistake to insist that roofing tile shall be selected and laid for practical uniform color and shading.

Within recent years architects have come to appreciate beauty in a variety of shading and texture in brick work. A somewhat similar variety in texture is quite as desirable on the roof as in the walls. Kiln run tiles should, therefore, be specified and the roofer instructed to mix the various shades as he lays them in order to avoid a patchy effect.

If the tile of a certain tone do not afford sufficient contrast, very pleasing

results may be obtained by ordering a certain percentage of dark tiles from one factory and the balance in a lighter tone from another, mixing them up carefully at the job. This will produce a sufficient variety of texture.

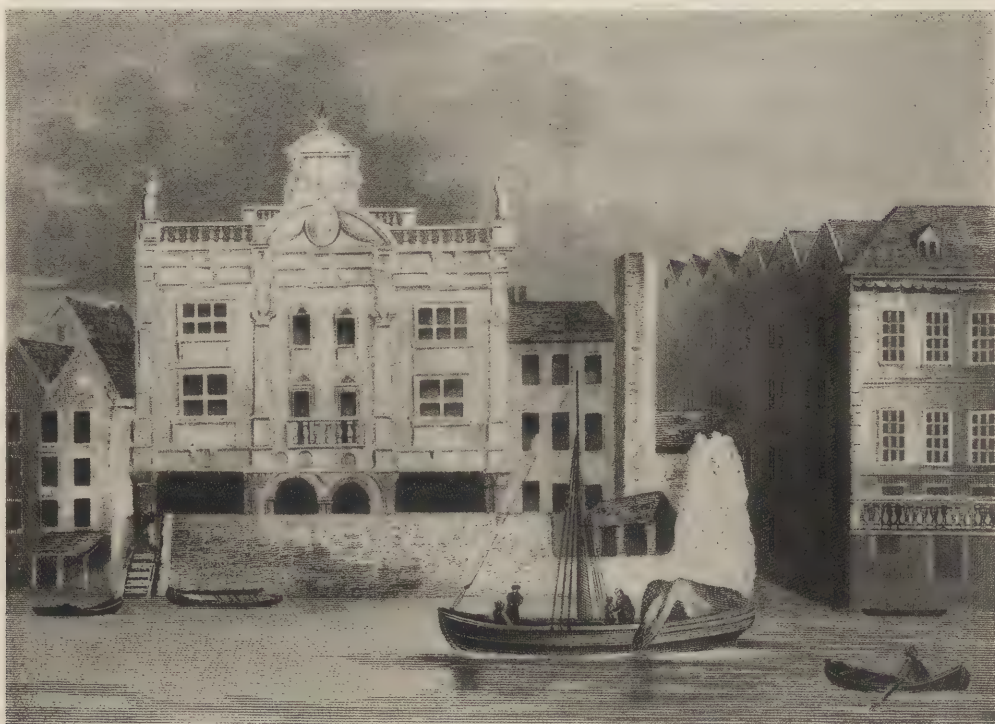
Of course, there is no possible way of achieving in a new roof the beauty of the old time stained, moss grown roofs of England or Italy.

Many an otherwise good shingle tile roof has a coarse, crude appearance because the valleys are left open instead of being step flashed with close joints between surfaces, or because the hips have been covered with so-called hip rolls instead of moulded hip tile corresponding to the balance of the roof, as illustrated in the rough sketches on page 352. This latter method is the one usually employed in England.

To secure a satisfactory job of this character the roofer should be required to make full sized templets of sheet metal for the guidance of the manufacturer of the tiles. Even with the greatest care a percentage of the tiles burned in this shape for hips will probably be found too badly twisted for use, but the result is well worth some extra trouble and expense.



Showing how effectively an octagonally planned bay window may be gabled. For the sake of roof harmony all the roof-included dormers are gabled, and were carefully studied in perspective. The one-story bay is the only jarring note.



Kind permission of Mrs. William Potter.

THE DUKE'S THEATRE, DORSET GARDENS (From an old engraving).

CONTRIBUTIONS TO THE HISTORY OF THE ENGLISH PLAYHOUSE

BY HAMILTON BELL

II ON THREE PLANS BY SIR CHRISTOPHER WREN

TWO OF THE important London theatres of the seventeenth century are known to have been built by Sir Christopher Wren and the earliest of these is regarded by no less authorities than M. M. Contant and de Filippi as the prototype of the modern theatre.

I have some reason to hope, as this paper will show, that I may have traced a partial plan of one of them at least.

The great fire of London in 1666 wiped out the precinct of the old Whitefriars Monastery and with it a theatre variously referred to as the Whitefriars, Salisbury Court, and the private house in

Dorset Court. The center of the dramatic world had by this time moved westward and was established in and about Drury Lane, between which and Lincoln's Inn-Fields the two patent companies, Killigrew's King's Servants and Davenant's Duke's Servants had taken up their abode, the former in a new theatre in Brydges Street, which was later to be known as the historic Theatre Royal Drury Lane and the latter in Lisle's Tennis Court in Portugal Row. Sir William Davenant had from the very beginning of his career as a manager shown a tendency to mount his productions with con-

siderable elaboration, so that it is rather to be wondered that he remained so long in these confined quarters than that he should about 1668 have availed himself of the opportunity afforded by the clearance in Whitefriars to engage Sir Christopher Wren to build him a new and magnificent play house in Salisbury or Dorset Court. Despite its distance from the fashionable center the convenience of the new site must have offset other drawbacks; by securing a plot of land fronting on the river, then and for more than a century to come, still the great highway of the metropolis, at the head of Dorset Stairs and connected by Salisbury Court and Dorset Street with Fleet Street, always the main artery between the city and the west end of town, he drew his audiences both from the citizens and the Court. Moreover, he was able to set his building in an open square unencroached upon by other houses, a consideration which doubtless weighed greatly in the years immediately following the disastrous fire. This theatre was not finished and opened until 1671, after Sir W. Davenant's death. In three maps of the period, one in the Soane Museum of which I give a tracing, in John Ogilby's map of 1677, and in Morden and Lea's of 1682, the Duke's Theatre is shown occupying this eligible position. The view given of somewhat later date shows the river front of it.

I have nowhere found the dimensions recorded but it is stated to have been larger than Killigrew's first theatre in Brydges Street, which we know to have been 112 feet from E. to W. and 59 feet from N. to S.

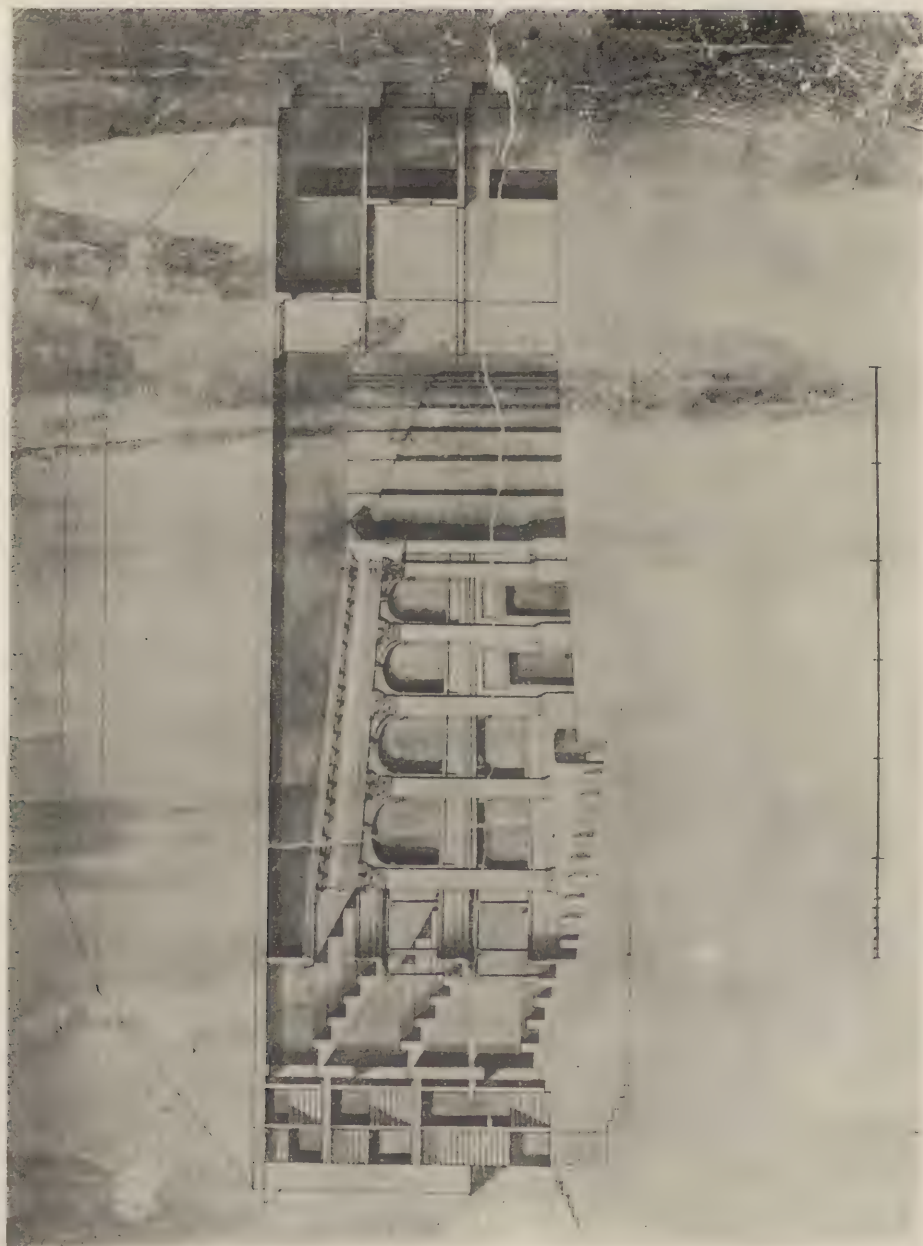
In the first edition of Elkanna Settle's *Empress of Morocco* published in 1673 are several views of the outside and proscenium of this theatre. That of the outside is curiously corroborated by the evidence of the map in the Soane Museum where (the principal buildings being shown in a bird's-eye perspective) the Duke's is readily recognized by its peculiar façade. In the margin of Morden and Lea's map, too, is a little sketch showing it.

The plan in Ogilby's map is large enough for us to trace with ease the

four columns of the front with the steps leading up to it; and the turrets at top. This façade had an overhanging first floor carried on four Tuscan columns forming a portico to shelter the entrance; above these were four Corinthian engaged columns with windows between and crowning the cornice which was carried up in the centre in an arched pediment, were two turrets. The whole composition being dignified, in fine proportion and eminently characteristic of its great architect.

M. M. Contant and de Filippi, on what authority they do not say, state, that according to the engravings, this theatre received the light of day from large windows which served to illuminate at once the stage and the salle. As we know, even in Shakespeare's day, the private or entirely enclosed theatres were artificially lit, they would seem to have assumed, not merely that the large windows shown in the façade opened from the auditorium, which is not necessarily, nor even likely to have been, the case; but that the theatre standing isolated had windows on all sides. There is no evidence either for or against this assumption, so far as I know, except that in the minute perspective at the foot of Morden and Lea's map there would seem to be windows on the east side of the building. Their description of the interior is as follows and is obviously based on, and may be checked by, the illustrations in the *Empress of Morocco* mentioned above:

The proscenium was rectangular, without columns, and did not reach to the full height of the salle; between its cornice and the ceiling, above the royal arms, was introduced a sort of box (*loge*) facing the public, flanked by enormous caryatides and surrounded by festoons. This was without any doubt the music room where the orchestra sat. In front of the proscenium to right and left of the space probably reserved for the orchestra were two large doors of the same style as the rest of the theatre and surmounted as in the Theatre of the Tuileries by two tribunes or balconies, making large windows to light the scene, for, according to the engraving the *théâtre*



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Fellows of All Souls' College, Oxford.*

SECTIONAL "PLAN 81" FROM THE ORIGINAL
DRAWING BY SIR CHRISTOPHER WREN.
Possibly for the Drury Lane Theatre, built by him
in 1672-74.

(in French meaning stage), received the light of day. The boxes, placed behind these two interior balconies, probably ran round the *salle* in two rows, separated by the large windows which are to be seen on the design of the *façade* and which served to light at the same time the stage and the *salle*.

It is amusing to note how innocence of English theatrical usage has led these two French architects astray. As already noted the box with its three curtained openings carried on a projecting shelf-like bracket over the whole *proscenium* arch was the Music Room, which, as Mr. W. J. Lawrence has ably shown, there is every reason to believe had occupied that position from the days of Queen Elizabeth till even later than the building of the Duke's Theatre; he advances ample evidence to show that in this particular building there is no doubt of the fact.

The space, probably reserved for the orchestra, was the projecting apron, also an English traditional feature, though by the eighteenth century not uncommon in France also. Curiously enough in this very theatre, when Shadwell's opera based on the *Tempest* was given in 1674, "the front of the stage is opened and the band (greatly enlarged for the occasion) placed between the pit and the stage." The fact of this specific instruction appearing in the printed play goes far to prove that the condition for which it provides was exceptional.

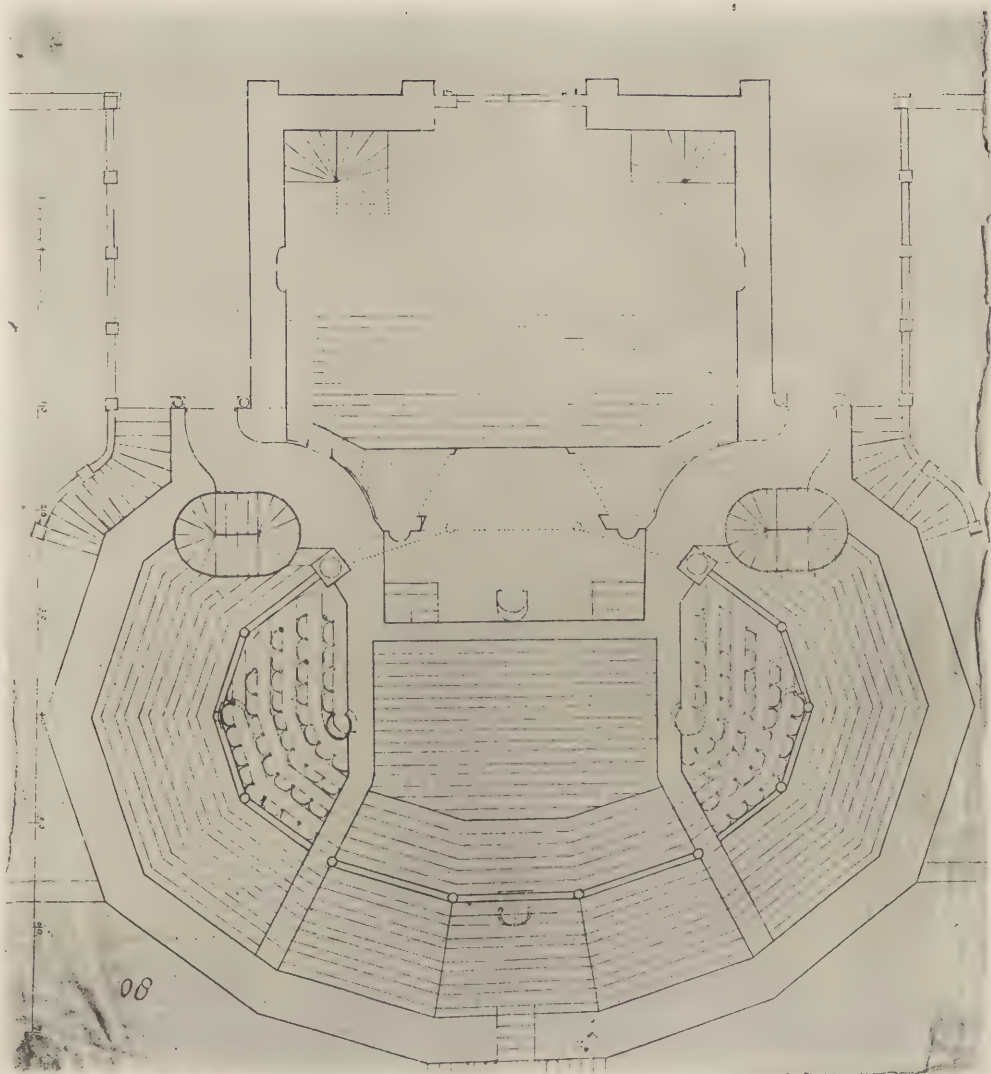
The doors with the balconies over them on either side of the stage are more familiar to them through having existed in the theatre built in 1660 in the north Pavilion of Catherine de Medicis of the Tuileries, turned into a *Salle de Seances* in 1792, when the Convention was signed in it, but their imagination of the rest of the house is fantastic to the last degree; whether in plan ovoid or rectangular, I venture to think probably the former, it was undoubtedly built with the then usual English arrangement of two tiers of boxes, surmounted by a gallery, the only private boxes being grouped about the *proscenium*. In the English theatres of the XVII and XVIII centuries the boxes were not usually partitioned off,

but like our balconies; even when partitioned, single seats in them were sold as in Continental Europe at the present day; even the Royal box, when unoccupied by Majesty, was let to commoners; Mr. Pepys sat there on occasion.

This theatre flourished till the amalgamation of the two patent companies in 1681, when it fell into disuse. The last mention of it I have found is that in 1698 a lottery was drawn in the deserted Theatre Royal in Dorset Gardens. Mr. Lawrence gives 1709 as the date of its final abandonment; though it must have stood for many years after.

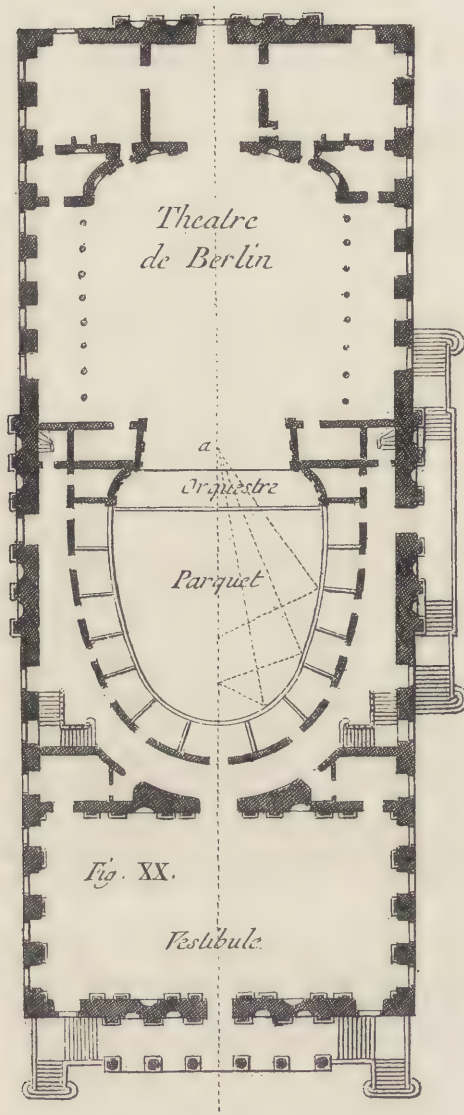
In the Library of All Souls College, Oxford, among the priceless but sadly dilapidated treasure of Sir Christopher Wren's drawings are three plans and one section of theatres; none of these are likely to be studies for the Duke's Theatre but in two of them the auditorium is shell shaped or ovoid and in one it consists of concentric semi-circles of seats in a rectangular hall. In two of these plans and in the section the staircase and lobbies are at the rear of the auditorium, thus cutting off the exterior facade with any windows it might contain from the body of the house. The same general arrangement occurs in a plan of Vanbrugh's old opera house in the Haymarket, opened in 1705, which I found in the Soane Museum; there is a tradition, how well founded I cannot say, that Sir Christopher was concerned in the planning of this house also.

To return to his plans at All Souls; Number 80 is a very complete and studied plan for a theatre with a shell shaped auditorium, having eleven sides; the result being that many of the seats would have had a very restricted view even of the "apron," in theatrical parlance that part of the stage in front of the *proscenium* arch which projects well into the pit, and none at all of the scenery. Indeed, except for the fact that there is indicated a very large and deep stage with a singularly narrow *proscenium* opening, this would appear to be a study for an academic theatre like the Sheldonian at Oxford, built by the same architect in 1664-9. Pillars and staircases indicate provisions for galleries.



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"PLAN 80," FROM THE ORIGINAL
DRAWING BY SIR CHRISTOPHER WREN.

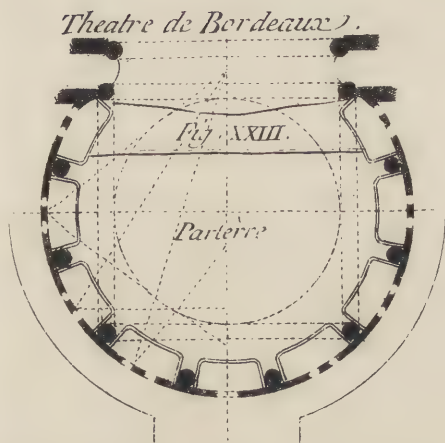


PLAN OF THE ROYAL THEATRE, BERLIN.
(18th Century.)

As an interesting commentary on the bad sight lines of both Inigo Jones' plan before described and this of Sir Christopher Wren's, we may for a moment take a glance across the channel. In an *Essai sur L'Architecture Théâtrale* par M. Patte, published it is true a hundred years later than the time we are considering, we find a plan of a projet d'une Salle de spectacles, pour un Théâtre de Comedie by M. Cochin, Graveur

du Roi, wherein he proposed to adopt the plan of the theatre at Vicenza, giving as his reasons, that in the theatres of his day while the boxes at the back, in the centre of the house, gave the best view of scenery and spectacle they were too far away for the occupants to hear clearly. He proposed to develop the half oval of Vicenza into an entire oval. Having got so far he realized that a large proportion of the spectators would not be able to see into the scene at all, so he planned to build a fixed *proscenium* or scene of architectural features with three large openings, the centre 24 feet wide, the two others 10 feet each, through which the scenes should be visible. He argued that the advantage of this plan would be, first, that every part of the audience would have its own background to look at, but principally that it would facilitate an adherence to the laws of unity and that by it a Temple, a Palace and a Tomb might all be shown at once, in case of the need, not infrequent in the classic tragedies of France for such a *decor simultanée*.

M. Patte demolishes this and M. Cochin's other arguments with much cogency, pointing out, among other objections, that his actors would find themselves isolated in the middle of the spectators and in a neutral ground so far removed from the scenery, that it would be difficult, if not impossible, to connect them with the particular background appropriate to any given moment; thus indicating his unfamiliarity with the customary British front stage, as it has been called in the Elizabethan play houses or in more modern parlance, apron. This plan was so far as I know never carried out, but the famous theatre of Bordeaux, built in 1773-80, regarded as the chef-d'oeuvre of Victor Louis, the architecture must be as bad as this plan of Sir Christopher Wren's, from the point of view of the spectator. Its circular *salle* must make it quite impossible for many in the audience to see any depth within the scene. This theatre, on account of its great architectural magnificence, was not without its effect on the architects of the New Theatre in New York, where a similar state of affairs resulted from the employ-



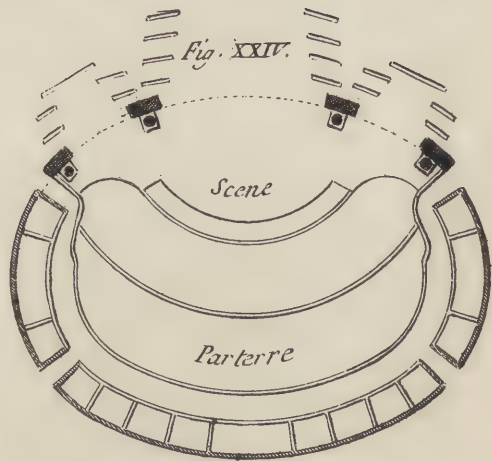
Kindly lent by Brandner Matthews, Esq.

PLAN OF THE THEATRE OF BORDEAUX.

ment of a shell shaped auditorium, curiously like this of Sir Christopher's. Although we had a stage depth of nearly 70 feet it was found necessary to confine the acting space and to set any parts of the scenery which were so important to the action of the play as to be necessarily visible to every member of the audience, within a triangle the apex of which could be no further than 21 feet from the curtain line. The blame for this state of affairs should not be laid on the shoulders of the architects, but where it belongs, on those of the late H. Conried, who was responsible for the following conditions:

The proscenium opening was to be 48 feet wide; the front of the first tier of boxes, in which were to be twenty-two boxes each 6 feet 2 inches wide, was to be 65 feet from the footlights; and every occupant of these was to see a spot 30 feet within the proscenium arch. Add to this the requirement that the orchestra floor was to seat 600 persons and it becomes obvious that the only dimension which permitted of expansion was the width.

The proscenium opening had subsequently to be reduced to 42 feet, which was still enormous, and the result was the state of affairs described above. Hence we may see that Wren's plan is not so preposterous as it at first appears since more than three centuries after his death one of the most distinguished archi-

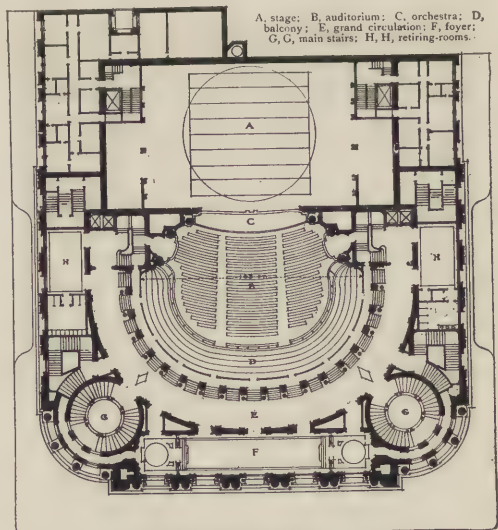


A THEATRE PLAN BY COCHIN.

tectural firms of the twentieth century could perpetrate a similar one.

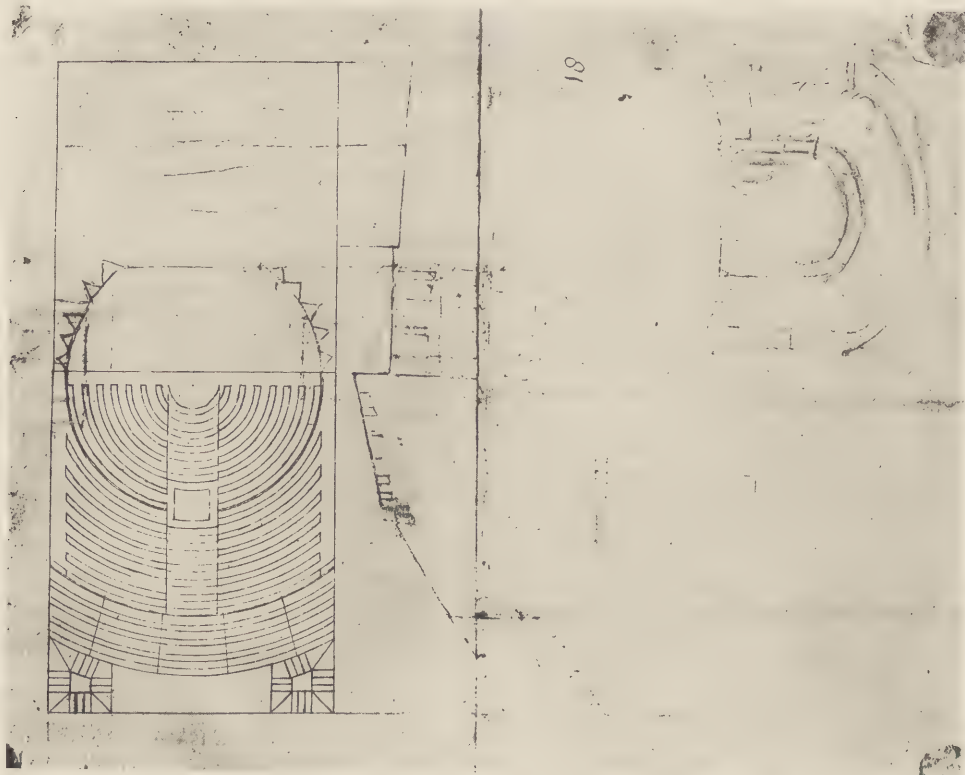
The Theatre Royal of Berlin, of which M. Patte also gives a plan, must have been nearly as bad, although its lines are more like those of the New Theatre; indeed he comments unfavorably on this defect.

The next of the All Souls drawings, Number 82, is a very rough block sketch for a theatre but is much more modern in treatment. The Salle is still of the familiar ovoid shape, the stage apron cut-



PLAN OF THE NEW (NOW THE "CENTURY") THEATRE, NEW YORK CITY.

Carrère and Hastings, Architects.



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Warden and Fellows of All Souls' College, Oxford.)

"PLAN 81," FROM THE ORIGINAL DRAWING BY SIR CHRISTOPHER WREN.



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"PLAN 82," FROM THE ORIGINAL DRAW-
ING BY SIR CHRISTOPHER WREN.

ting clear across its longer side; there are indications of two boxes on a side in the flaring proscenium, but no doors therein; the galleries are carried by columns dividing them into ten bays, in three of which are suggestions of box partitions. The pit seats are indicated by curved lines conforming to those of the house and an enclosure presumably for the orchestra projects from the stage front into the middle of the pit.

Staircases are shown to right and left behind the wall of the auditorium and what are probably two large crush rooms, such as may be found in the older theatres of Europe, extend on either side of the house, passages from them leading to the stage.

The third plan, numbered 81, shows a rectangular building more than twice as long as it is broad; of this the auditorium occupies rather more than half. The pit seats are arranged in concentric semi-

circles and those in the boxes in segments of circles all struck from the same center. In the middle of the house is a square space probably a royal box or dais as provided in Inigo Jones' plans for the Court Masque at Whitehall. The most interesting parts of this drawing are the faintly pencilled suggestions for the section and the elevation of the proscenium arch. This is enormously deep and flaring and would seem to provide for three tiers of four boxes each, on the apron. The arch itself is flattened and segmental. The apron is level, but the stage behind the proscenium line has a distinct rake from front to back and is strangely raised a little above the apron.

The pit slopes up from the front to the beginning of what in those days was called the boxes, though there is no indication of anything above these, where the pitch to the back of the house becomes much steeper. There is a division or railing indicated, cutting off the four last rows of seats from those in the front of this amphitheatrical arrangement. Above these again the section indicates a gallery, only one so far as I can see, rising at the same steep angle to the back wall of the building, over the passage or foyer at the rear of the boxes. It is served by two staircases, one on each side of the house. Over the center of the Salle is indicated either a hanging canopy, above the royal state, though it would seem too high for that, or a corona of lights, or else some sort of central skylight shaft; this is not impossible as we know that there was such a contrivance in the first Drury Lane theatre, the King's house as Mr. Pepys calls it, from his complaints of the rain and hail beating down from it into the pit. The whole plan with its section and elevation seem to me to be of very great interest and importance. But by far the most valuable, as it is the most finished of these drawings, is that numbered also 81, although it has no connection with this plan. This is in every way a familiar scheme for a playhouse of the modern type. It is a complete and thoroughly studied and rendered section of the building and scales 112 to 113 feet in length outside,

which corresponds so nearly to the known dimension, 112 feet, of Killigrew's first theatre in Brydges Street, Drury Lane, that I am almost tempted to consider it a study for its successor, which Sir Christopher Wren built in 1672-4 after the destruction by fire of the original; there is an additional piece of evidence, if I may give it so weighty a title, to which I shall come in a moment.

In the section before us the stage with its apron and tiring rooms occupies 64 feet with a 3 feet space for the orchestra in front again; leaving 56 feet for the salle and 8 feet for lobbies, staircases, etc.

The stage projects into the pit 17 feet in the form of an apron.

The cornice is carried by an order of Corinthian pilasters, six on a side, with boxes in two tiers (except on the apron, where two doors on each side replace the lower boxes) between them. The fronts of the galleries are curved in plan and the top gallery runs up through the cornice to afford sight lines for the rear seats. It is not easy to decide whether or no the ceiling rested on the cornice or was above it. In the pit, which slopes up towards the back, are ten rows of seats and there are four rows in each of the three galleries. The staircases are all behind the auditorium wall which is shown pierced with doors into the corridor foyer.

The drawing is inscribed "Playhouse." The stage rakes from the front edge of the apron clear to the back of where scenes are indicated as standing, beyond that to the back wall of the house it is shown level; the tiring rooms being thrown forward over this portion of it, i. e., there are none on the stage floor, one on the floor above and one on the floor above again. They have windows looking inward on to the stage as well as out to the air. Over the ceiling of the stage and the house is a loft and an enormous mansard (not shown in section) covers the entire building.

This drawing reopens a question which one was disposed to regard as settled. Mr. R. W. Lowe in his *Life of Betterton* contends for the existence of four permanent doors in the proscenium of the sec-

ond Drury Lane theatre, on the strength of a passage in Colley Cibber's apology describing the cutting back of the apron about four feet by Chr. Rich in about 1696 or '99. It runs: "The former lower doors of entrance for the actors were brought down between the two foremost (and then only) pilasters, in the place of which doors now the two stage boxes are fixt."

This drawing even if not for Drury Lane, which the presence of more than two pilasters would seem to deny, appears to substantiate Mr. Lowe's contention, although I think that Mr. Lawrence, his opponent, has demonstrated that in any case four doors were an exception and that two, one on each side, as in the older Elizabethan platform stage were the rule.

Now for my second piece of presumptive evidence that this is a sketch for Wren's Drury Lane theatre. It will be noticed that there is in the drawing no indication of proscenium or curtain line; a curious hiatus in the cornice would suggest, either that the architect had not thoroughly studied this portion of his design, although the rest of it is so complete that such an hypothesis is almost

untenable, or that the upper part of the proscenium was for some reason unknown, probably theatrical, purposely left bare to be supplied by a temporary drapery or painted valence.

There exists in the British Museum the frontispiece dated 1674 to the French opera of *Ariane* or the *Marriage of Bacchus* with which this playhouse opened its door in that year. It shows us a square pilaster based on the apron on either side of the stage opening, of the same type as those in Sir Christopher's section, but fluted, which his are not, and without plinths, which his have. These are drawn in a sufficiently correct perspective but the strip of cornice which connects them has no visible thickness and might easily represent a canvas valence such as is not unusual even in theatres of the present day, to mask the top of the scenes.

I am well aware of the rashness of trusting to these frontispieces to published plays and (particularly in view of the inaccuracy of this one in the matter of the pilasters) should not dream of basing a theory on the bare evidence of one of them. I merely submit that there is a coincidence.



THE FRONTISPIECE OF "ARIANE," SHOWING THE PROSCENIUM OF DRURY LANE THEATRE, 167-(?).

WHAT DO WE KNOW ABOUT LIGHTING

A STUDY THEORETICAL, SCIENTIFIC & PRACTICAL
By F. LAURENT GODINEZ, CONSULTING LIGHTING SPECIALIST

II.—ELEMENTS OF THE TECHNIQUE OF LIGHTING.

NOTE.—The purpose of this article is to illustrate certain axiomatic facts of an elementary nature bearing on light sources, distribution of light therefrom, and laws of reflection. Following these necessary preliminary studies it will be possible to direct a discriminating knowledge upon the physical and optic properties of illuminating glassware. Elementary as some points brought out here may seem, a thorough understanding of them is essential for the reason that they are involved in all questions of lighting. In addition to the exposition of more advanced and intricate principles of sources, reflection, diffusion, etc., etc., in other articles, the analytic study of specific installations will be taken up, as well as the design of fixtures, practically and esthetically considered, and should the interest of our readers warrant it, a study will be made of the lighting of specific types of buildings, such as schools, libraries, hospitals, banks, show-windows, factories, etc., etc., as well as street lighting and church and theatre lighting.—Editor.

To use artificial light in aiding architectural expression, and with the freedom of the artist's brush, one must first acquire technique.

This must be accomplished without imposing restraint upon imagination, or originality, since in lighting these are the qualities which distinguish the work of the artist from the empiricist. Hence a consideration of narrow, theoretical, or empirical data is to be avoided.

From the architectural viewpoint there is no preconceived method of lighting an interior, and the illuminating engineering dogma of always expressing lighting in terms of energy, or intensity of light per square foot, tends only to produce ugly and commonplace monotony. The importance of cultivating one's ingenuity and imagination cannot be over emphasized. Consider first the *effect*—a picture for the eye—then as to *cause*, apply your technique as the artist does his colors.

The mechanical piano (technique exemplified) in the hands of the unskilled player becomes an instrument of torture;

whereas, influenced by a personality capable of true musical appreciation, it is a medium of rare artistic expression. Similarly with lighting—technique is merely a means to an end. Given a person of inartistic appreciation, an alien to the Beaux Arts, and whether the *means* be a pianola—with its flawless technique—or the lighting formula of the empiricist—the *end* will be equally offensive and fundamentally unsatisfactory.

There is no interior of such insignificance but that the artificial light, intelligently applied, will not raise it to a higher plane of individual attraction, and this result can always be attained with due regard for legitimate economic requirements.

Let the designer apply the following logic in a general analyzing of lighting conditions and the end will justify the means. All ambiguities, theoretical vagaries and technical misconstructions have been eliminated, the treatment being confined strictly to a presentation of essentials.

Architectural expression demands va-

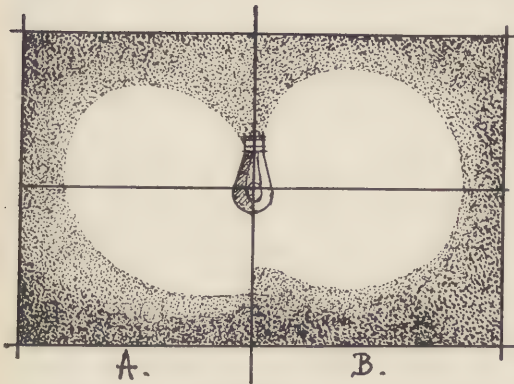


Figure 1.

- (A) Light about carbon filament lamp, frosted glass, unshaded.
 (B) Light about same lamp, clear glass, unshaded.

rious modifications of direction, intensity and color of lights—hence, *avant tout*, a consideration beginning with the light source itself is necessary.

Fig. 1 represents the typical distribution of light about a carbon filament electric lamp. Note that the greatest candle-power is on the *horizontal*. In other words, the lamp gives very much less light from the base and tip end than it does from the side. This is quite natural, since the light radiating surface is formed by the inner wire, or filament, and there is much less wire in the loop near the tip than on the sides. Some light is also cut off by the base. The important thing to remember is that the rated candle-power of a lamp is on the horizontal, and that from the top and the base very little light is radiated. This is even more marked in Fig. 2, showing the distribution of light about a tungsten

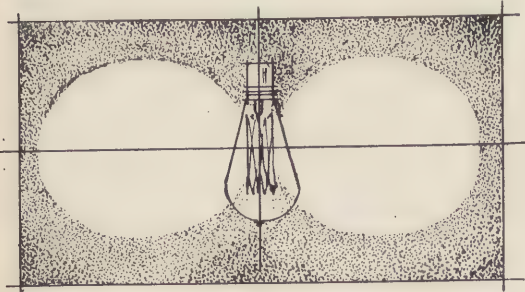


Figure 2.

Distribution of light about a tungsten lamp, clear glass, unshaded.

lamp. Here owing to the greater number of inner wires, and their method of support, there is practically no light radiating surface near the lamp tip which is indicated by the distribution of light.

Hold any electric lamp above a white card tip downward and then turn the lamp on its side. The increased light thrown on the card is surprising. This does not mean that lamps should be placed in horizontal positions or that reflectors are advised in "all cases" to redirect the horizontal candlepower downward, but is mentioned to impress the fact that the greatest candle-power or such illuminants is their rated or *horizontal* candle-power.

This same observation applies to gas lamps. Fig. 3 shows an upright incandescent mantle, as well as the inverted type. The inverted mantle distributes more light below the horizontal, owing

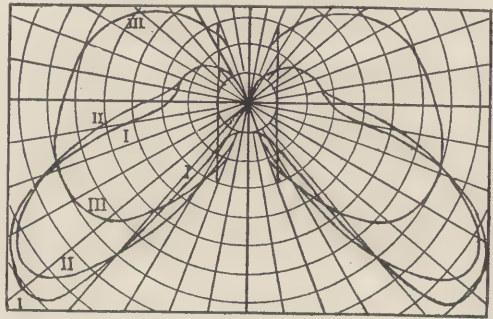


Figure 4.

Light about an arc lamp.

- (I) Without enclosing glass.
 (II) With ground glass cylinder.
 (III) With opal glass cylinder.

to its greater light radiating surface, at the semi-spherical mantle tip and the absence of impedimenta like the burner mechanism of the upright mantle.

It will be interesting in another article to discuss the *color values* of different light sources, as these definitely affect architectural environment.

Bearing in mind these facts, it is of interest to note what effect glassware has, fundamentally, in modifying the distribution of light about a source—and particularly whether such re-direction of light meeting utilitarian requirements can be effected without neglecting important esthetic considerations.

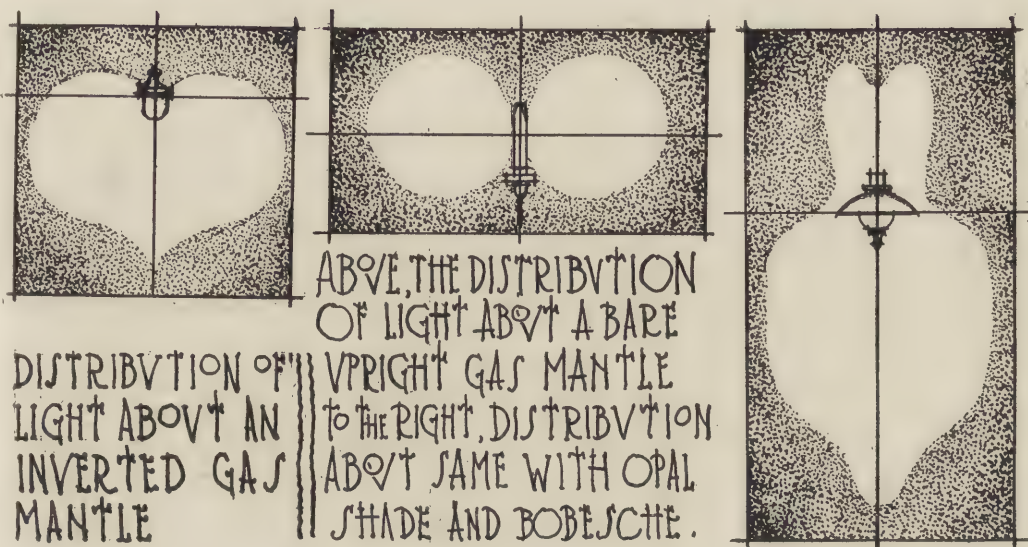


FIGURE 3.

Distributions of light about different types of gas mantles.

In Fig. 4, outline I shows the distribution of light about a bare arc lamp, while outline II indicates the change in distribution caused by placing a cylinder of ground glass over the arc. This causes a slight loss by absorption, but practically no change in distribution. Outline III, however, shows a marked change in distribution caused by placing a cylinder of opal glass over the arc, there being considerable light above the horizontal, where there was none before.

We are not at all interested at present in the suitability of these various distributions for any particular application, but only in the *change* in distribution produced by the action of the enclosing media.

The question of appearance is, however, of great interest, and that is very definitely shown by Fig. 5. The use of ground glass is absolutely opposed to architectural expression when used as indicated. The architect's idea, for example, is of a lighted globe on a capital, indicated in the line sketch, but in the first photograph the relative proportion of the ball and capital is entirely distorted by the action of the ground glass, which, instead of conveying the expression of a uniformly luminous spherical

form, reveals a glaring spot of white light within a dismally defined outline. The second photograph in Fig. 5, however, shows the more artistic and pleasing appearance of opal glass which conveys the architect's idea in terms little differing from his drawing.

The reason for the superior diffusive action of opal glass (made by all glass makers) is on account of minute particles of opal suspended within the structure of the glass—which aids materially in giving better diffusion.

As the result of an original research by the author to determine the transmitting and reflecting phenomena of glassware,* using the ultra microscope, Fig. 6 shows a micro-photograph of ground glass, known as CRI (crystal roughed inside) and the effect of its surface roughening.

Figs. 7 and 8 indicate the effect of *light* and *dense* "acid etching," a surface treatment which with plain glass only aggravates the "spot of light" effect.

In Fig. 9 the heavy line indicates the typical distribution of light about a bare

*"Modern Requirements of Reflector Design." Transactions of the Illuminating Engineering Society, Vol. 6, No. 8, p. 923.

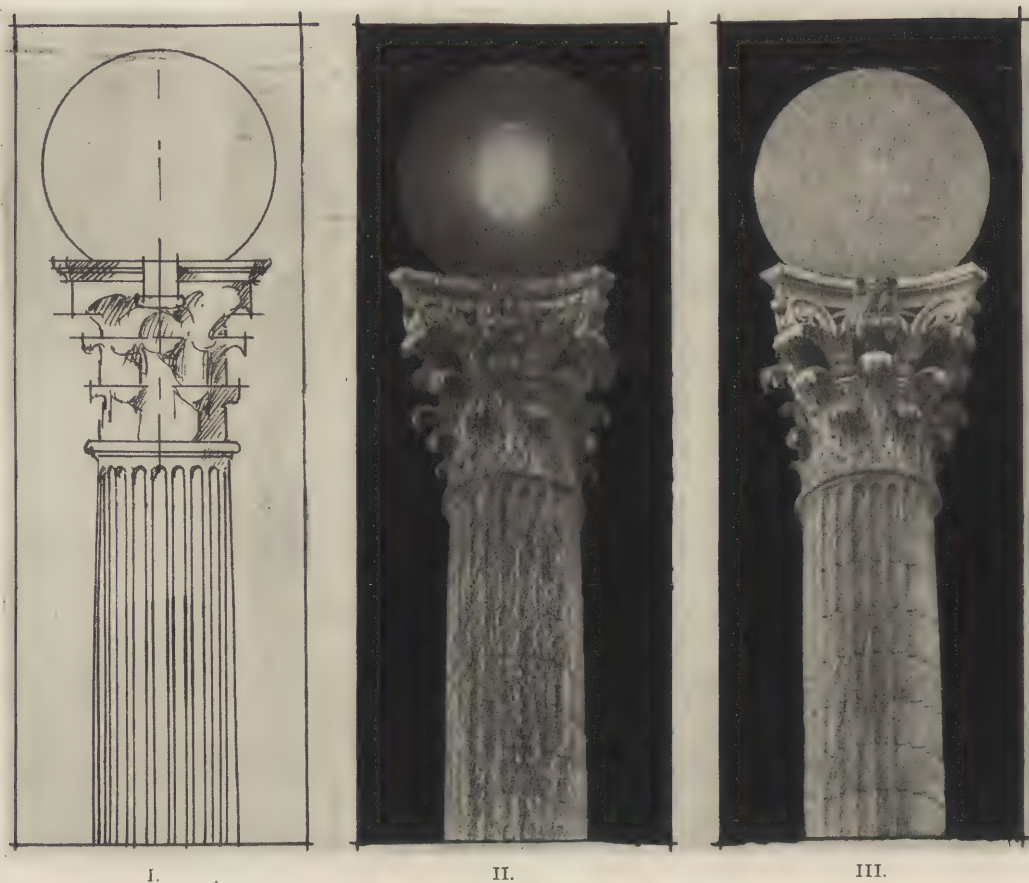


FIGURE 5.

(I) Indicates the architect's intention, (II) the negation of this idea by the use of the wrong kind of globe, and (III) its expression by the use of the correct kind of globe.

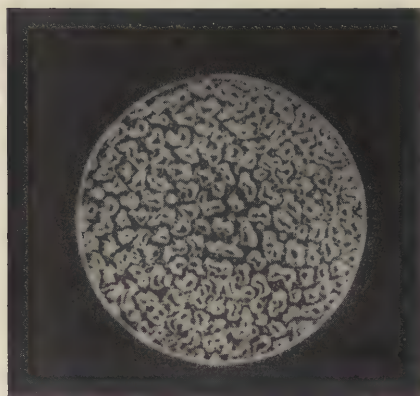


Figure 6.
A micro-photograph of ground glass.

electric lamp, and the light broken line, the slight modification effected by a ground glass globe.

Fig. 10 shows the suspended particles of opal within the structure of opal glass.

Fig. 11-E represents a ball of ground glass and R a source of light—any emergent ray (I) is transmitted through the glass without having its direction changed, or its intensity greatly reduced, and with a slight dispersion r^1 - r^2 - r^3 - r^4) at the front of emergence.

This accounts scientifically for the ugly "spot of light" effect characteristic of ground glass, which is shown diagrammatically, by Fig. 12, the visual angle, "spot brightness," and lack of



Figure 7.

Micro-photograph of light acid etching on ground glass.

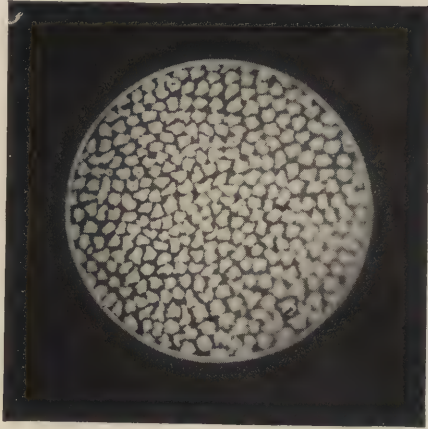


Figure 8.

Micro-photograph of dense acid etching on ground glass.

uniform luminosity being clearly defined. Fig. 13 tells a different story. Any emergent ray from within the globe



Figure 9.

The heavy line shows light about a bare electric globe, the broken line its modification by a ground glass globe.

of opal glass (E) is split up as shown by ($r^1-r^2-r^3-r^4$) with a single directionally unchanged ray (I) of greatly reduced

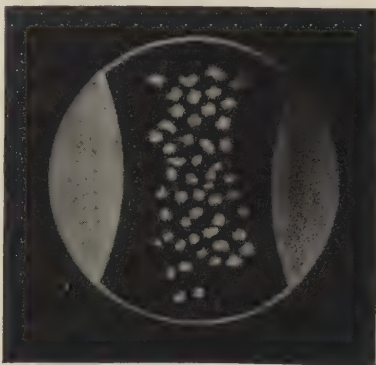


Figure 10.

A micro-photograph showing the suspended particles of "opal" in opal glass.

intensity. Fig. 14 illustrates diagrammatically just how the diffusion of an opal ball conveys to the eye an impression of uniform spherical luminosity. It is only with opal glass of the lightest density that there is ever any visibility of source other than the outline filament effect due to the translucent phenomena of opal glass for red rays. While, of course, the "spot of light" effect of ground glass diminishes as the distance from the source to the inner globe surface decreases, it is only when a small

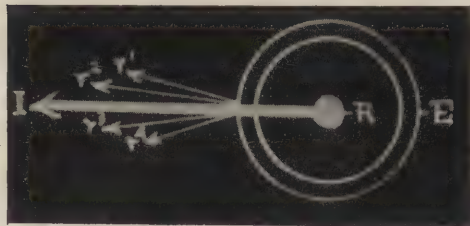


Figure 11.

The effect of an emergent ray through a ground glass globe.

source is placed in the center of a large ball, that the effect is much improved. Furthermore, ground glass is most frequently used on columns, and at heights where some useful light might be appreciated below. In such instances it is equally ugly and useless, the original distribution of the light source being practically unmodified. This is equally true of ground glass in other than spher-



Figure 12.

A diagram showing the cause of the "spot of light" effect from a ground glass globe.

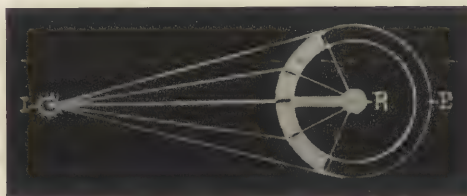


Figure 14.

A diagram illustrating the diffusion of light from an opal globe.

ical form. With an upright source, surrounded by ground glass forming the panels of a lantern, the same unmodification of useful light, and the same ugly "spot of light" obtains. It matters not how beautiful a lantern may appear by day if one turns away blinded by its glare at night, it then becomes an abomination, not an ornament.

Fig. 15 shows how light transmitted by opal glass tends to assume a distri-

tectural consideration of appearance was neglected, and Milton's lines—

"The other shape . . .

If shape it might be called, that shape had none,"

best describe the result.

But, why revoke the past? Experience is an excellent instructor, and those who then prescribed three remedies for all lighting ills, now recommend opal glassware of a type closely resembling the products of their erstwhile competitors.

Reverting momentarily to terminology, it should be borne in mind that the term "reflector" may only be used in designating an *opaque* semi-enclosing form, which does not *transmit* light.

The term "shade" may properly be used in describing semi-enclosing forms which are more or less translucent and consequently transmit, reflect, or diffuse light. The question is slightly irrelevant at this point, but the distinction is one which the designer should enforce in preparing lighting specifications (as la-

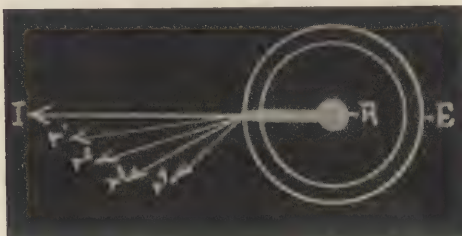


Figure 13.

A diagram showing the redirection of light by suspended particles of "opal" in opal glass.

bution symmetrical to the form of the glass. Fortunately all glass makers make opal as well as ground glass, and should be encouraged to turn out more of the former and less of the latter.

Regarding the re-direction of light, as accomplished by shades, this much over-rated detail of lighting has formed a perpetual bone of contention for wrangling manufacturers, "illuminating engineers," and others. One group of glassmakers started the ball rolling with the quaint claim that all light problems could be separated into three general classes, and universally solved by applying three shapes of shades, giving varied distribution of light. The archi-

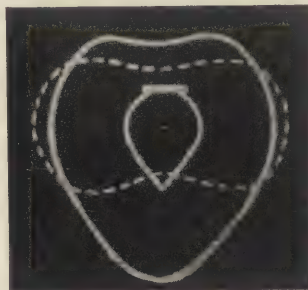


Figure 15.

A diagram showing that light transmitted through opal glass tends to assume the shape of the light source.

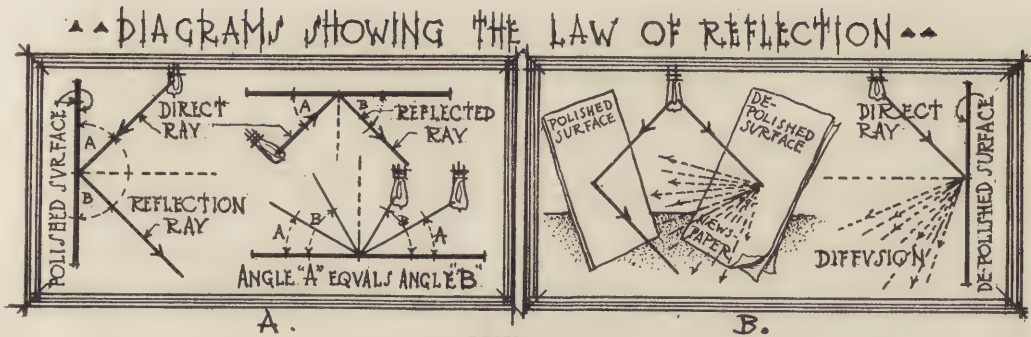


FIGURE 16.

Illustrations of the law of reflection: (A) Reflection from a polished surface—angle "A" equals angle "B"; (B) reflection from a depolished surface—the reflected ray is diffused.

ter indicated) for competing manufacturers' bids.

This question of diffused or reflected light is of great importance and, like most perfectly simple matters, has been either ignored or misunderstood, since the majority of lighting applications and appliances indicate an entire ignorance of its principles.

When light strikes an opaque surface one of two things happens—it is reflected or diffused. If the surface is polished, glazed, or smooth, be it of wood, glass, or whatsoever material, the incident ray will be sharply reflected, as indicated in Fig. 16 (A).

Most grammar school pupils have probably forgotten that the "angle of reflection equals the angle of incidence." If the surface is rough, or depolished, the incident ray is broken up and dissipated, Fig. 16 (B). (See also Fig. 17.)

Since the advent of high brilliancy illuminants, this neglected law has been demanding recognition. Horrible examples are to be found on all sides. The

highly glazed reading page must be shifted so that the angle of reflected light does not enter the eye, causing glare. The depolished page of the newspaper, however, does not cause glare, since every ray incident to its rough surface is *diffused*, and no direct rays enter the eye. Practically all of our art gallery lighting is an example of light misused—the lights being placed in the wrong sort of reflectors which distribute the light unevenly (generally all at the top of the picture frame), or if they are placed some distance from the picture, the sharply reflected light from picture glass, or protruding particles of paint, causes so much glare that the observer is obliged to change his position continually in order to obtain even a general impression, to say nothing of the distortion in perspective caused by such lighting.*

What is true of reflected light from pictures in galleries is no less true of the unpleasant effect of light reflected from other surfaces, such as marble or painted walls. It must always be remembered that not only must a source be concealed, but its reflection also.

Fig. 18 shows how proper understanding of the critical angle protects the eye. Again the use of polished surfaces on sign boards gives the same effect—glare from sharply reflected light, rendering certain letters blurred and illegible (Fig. 19) when the

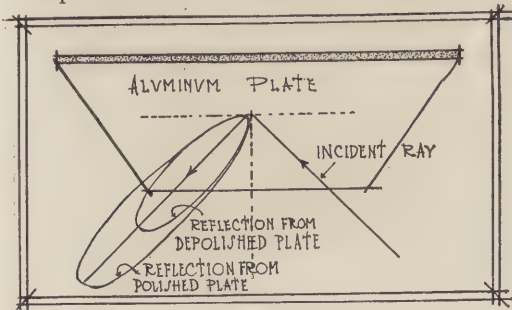


Figure 17.
The Law of Reflection.

*This subject will form the basis of a special discussion in later articles.



Figure 18.

A proper understanding of "the critical angle" saves the worker's eye.

observer's eye encounters the abruptly reflected ray. In the same way glare from the "white way lights" is reflected from the polished surface of the display window, causing a sheen, which obscures merchandise displayed within and renders any method of window lighting ineffective. Similarly, glare from glazed surfaces on cabinet work in windows, distracts from the effectiveness of the display, and oftentimes reveals, mirror-like, the location of ugly light sources, and their unattractive accessories—wiring and reflectors.

Now, as to the effect of diffusion and reflection in modifying the distribution of light sources: First as regards opaque reflectors—which do not transmit light. Referring to Fig. 20, it is evident that the horizontal rays of light from an illuminant within a reflecting surface will be re-directed by the reflective or diffusing action of that surface. If the surface is polished, they will be sharply reflected and the interior of the reflector will appear to the eye like the headlight of an automobile. Of course, reflectors of such types are not hung so that they are staring one in the face, but, on the other hand, the polished surfaces of tables and papers reveal their images with mirror-like fidelity—and its image will be equally so. These mirror-images of glaring reflectors are factors of great distraction in large of-

fices devoted to clerical work. Hence the hanging of reflectors, or shades on drop cords so high that they are not within the visual field of seated workers, does not necessarily relieve their eyes from the danger and annoyance of mirror-like reproductions of glaring spots of light on polished working surfaces below. There is no reasonable excuse for this sort of thing, since all glass makers can furnish, upon demand, glassware interiorly depolished and free from glare.

Prismatic reflectors should never be placed within the visual field, unless interiorly depolished by acid treatment. In emphasizing this statement Dr. Percy W. Cobb, Physiologist for a group of tungsten lamp makers, states: "In the case of prismatic reflectors it is only when they are so far away that the eye is unable to distinguish their individual surfaces, and the media of the eye can themselves perform the necessary diffusion, that there is any reduction in intrinsic brilliancy significant for the pro-



Figure 19.

Lights in reflectors often cause brilliant spots of light to be reflected from the comparatively polished surface of billboards, etc.

tection of the eye." This fact has been repeatedly impressed upon glass makers, and many are now furnishing shades with inner treated surfaces, giving a pleasing diffusion of light. The treatment is nothing but a combination of sand blasting and acid etching, adding less than a quarter of a cent to the cost of each globe, and since all glass makers are in a position to apply it, there is no reason why they should advocate polished inner surfaces, particularly when such glassware is a menace to the eyesight. Of course, all lamp-tips, or inverted lamp chimneys, should be frosted, so that the lamp filament, or

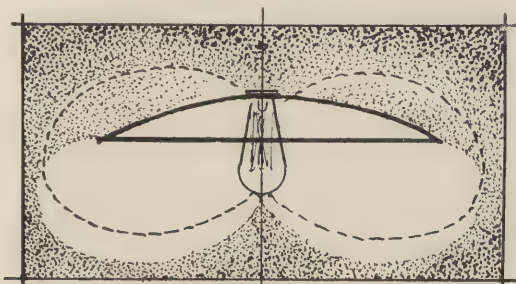
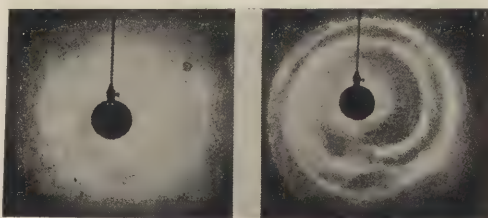


Figure 21.

Light source projecting below flat dish-shaped reflector. The broken line shows distribution without reflector.

gas mantle, is entirely concealed. The practice of allowing pendant lamps to project below flat or dish-like plates, should be avoided, since the source is exposed and the eye unprotected. Furthermore, if redirection of light is desired the re-directing surface must be placed well over the illuminant in order to intercept and re-direct its light rays. This cannot be accomplished when the lamp projects far below a flat, dish-like



A.

B.

Figure 20.

(A) Effect of light from aluminum reflector with depolished surface.

(B) Effect of light from same with polished surface.

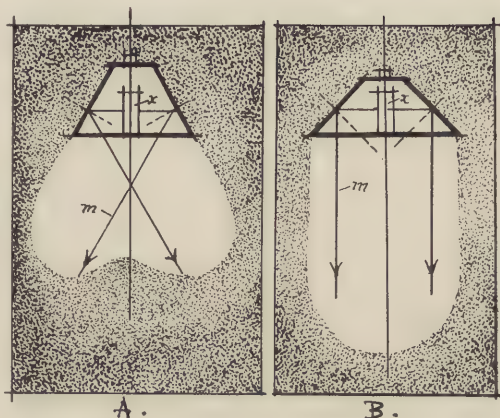


Figure 22.

(A) Distribution of light from reflector in which reflected rays are crossed.

(B) Distribution of light from reflector in which the incident rays are reflected directly downward.

shade (Fig. 21) which merely serves to cut off such light, as would be directed upwards, toward the ceiling in the case of an exposed (pendant) illuminant. Figure 22 illustrates the approximate reflection of light from a source (x) when placed as indicated in two different types of inside-polished re-

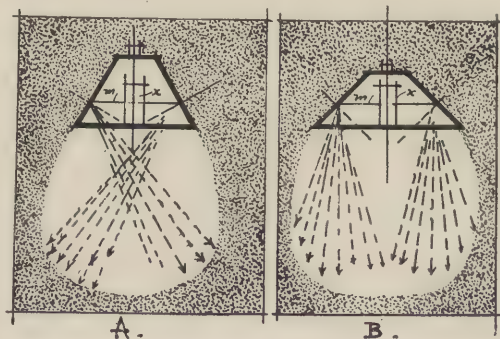


Figure 23.

Diffused reflection of reflected light from reflectors in Fig. 22, resultant from depolishing inner surfaces.

flectors. In A the sides of the reflector are so steep that the rays of light (m) from the source, glancing off at the angle of incidence, cross each other. In B the sides of the reflector, sloping at a lesser angle, are reflected directly downward. In figure 23 there is shown the more even distribution of light resulting from depolishing the reflecting surfaces of two reflectors similar in shape to those in

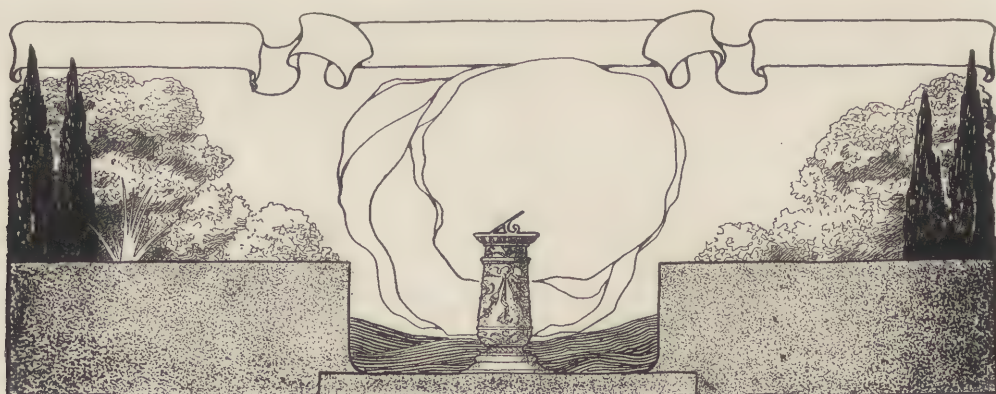
Figure 22, and with light-sources similarly placed. From an architectural viewpoint shades and reflectors may be classified under two general headings:

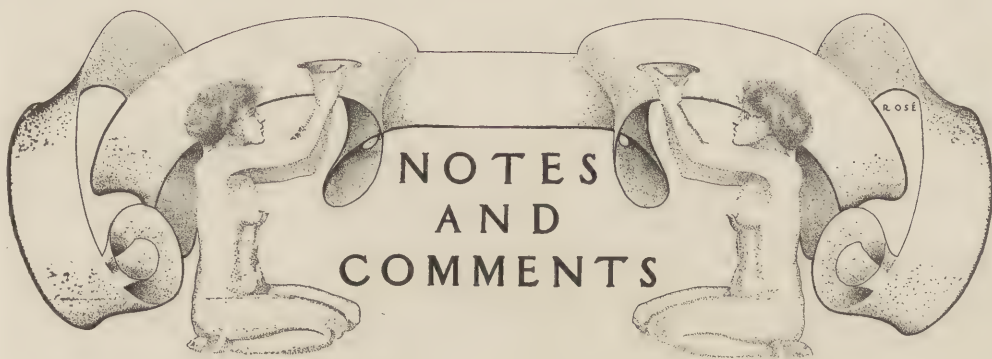
First.—Opaque and translucent re-directing surfaces which must be specially designed to produce necessary modifications in distribution, color and shadow, applied so that they are entirely concealed from view, within coves (for the avoidance of the "spotty effect" characteristic of such lighting), bowls, urns, pedestals, cornices, and above and behind skylights and frieze and griandole members. Here the quality of the reflecting surface, its permanency and requisite contour, are the points to be considered, its appearance, as it is (or should be) entirely concealed, being negligible.

Second. — Translucent, re-directing and transmitting surfaces which are exposed to view with re-direction to be accomplished without marring the outer surface of the glassware, of which the design should be left to the architect. By insisting on this point, and refusing to specify commonplace glassware, the architect can aid greatly in relieving the monotony of commercial lighting. Really progressive glass makers are pleased to

prepare special moulds based on architectural designs for conformity with given interiors. It will be interesting to illustrate and discuss different types of reflectors and varied diffusing media in illuminating glassware best suited to different architectural schemes. So many points must be considered—source, direction, reflection and enclosing shades, not to speak of the design of the fixture accessory to the light, that too detailed or too careful a study cannot be made, if solutions of the lighting problem at once adequate and esthetic are desired.

Two factors must coöperate if an era of better lighting is to be effected—the architect and the manufacturer, the one to design understandingly and supply the esthetic element, and the other to produce understandingly and supply the practical element. More individualism and less commercialism would go far toward the reformation of this vastly important detail of architectural design, opening up limitless possibilities for practical and esthetic development. Returning to "technique," an artist requires a full palette of colors for his work, why must the architectural designer of a lighting scheme be limited in his choice to a few stereotyped patterns?





The Responsibility of the Architect as Related to Sub-Contracts.

Every architect expects and endeavors to obtain the best of materials and workmanship in his building operations (as a glance at any specification will show), but there are many reasons why he does not always get the result he desires. The proper completion of work means a great deal to the architect aside from his desire to see his ideas carried out. Future business from the same client, as well as from new clients, depends upon the care with which materials have been selected and applied as much as upon the design, although it is upon the latter that reputations are built. The design is safe, but a few years, perhaps months, may develop faulty materials and workmanship. In many cases this is "up to the architect" who has the power and the privilege to do all that can be done towards insuring his clients and himself against this contingency.

In these days when every building operation is a combination of sub-contracts many architects realize the importance of selecting competent sub-contractors but there are many more who leave this matter to chance or the discretion of the general contractor, which latter amounts to the same thing, in many cases.

When it is considered that contractors are in business for profit it is not surprising that many let sub-contracts to the lowest bidder, however irresponsible, if the architect approves or if he neglects to inform himself upon the reliability of the sub-bidder. It is a very easy matter to satisfy himself as to the ability of a concern to carry out the work in a thorough manner. Any man will proclaim his fitness to execute work but if he is unknown to the architect the poorest way in the world to deter-

mine this is to entrust to him an important contract. The time to discover that a firm is incompetent is before the contract is let and this may be accomplished by conferring with architects on whose work the individual or firm has been employed or, better still, although it means more time spent, by inspecting the work itself.

Every architect has some standard for workmanship or materials that he has been in the habit of using, but where certain classes of work have not been included in his practice, he must either learn by his own experience or by the experience of others who are familiar with them. In either case he will eventually discover that there are good, bad and indifferent concerns in every business allied to architecture and will sift down his sub-bidders to those who are reliable and who will execute his work in a first-class manner. If he confines his invitations or approval to these concerns he has gone the greater part of the way towards the result that he desires and for which his client pays.

Dollars and cents, while important factors in most work, should not determine the award of any contract, general or other, and many low bidders are low because they have used bids from concerns that only the indifference of architects keeps in business.

It is clearly unfair to the first-class contractors to place them in the lists with others who are not able and do not intend to do their class of work. This is, however, an uneven contest that is being waged every day and the reputable firms are powerless to prevent it. Competition between equals is welcomed by all, and comparatively slight difference will be found in their estimates; therefore, when one bid is far below several of these, two things are certain—an error has been made or a different

class of work is contemplated. The good concerns cannot "knock" the others, but they know that a poor job will have more effect upon the architect than advice from them, and it is sometimes a consolation, for the loss of a contract to an inferior firm, to know that they will never compete in that office again, always provided that the architect is aware of the class of work they are capable of performing.

It cannot be expected that an architect be an expert in the varied lines of work that comes under his supervision, and, while many have acquired valuable knowledge of different materials by their frequent use, a large majority must rely upon their care in selecting the proper materials and firms to apply them. This is particularly true of special work, the component parts of which are produced and assembled by the concern to whom the contract is let, and which cannot be judged until the whole is complete or in place. It is on such work as this that the architect, to be safe, must employ people who can point to work of equal magnitude that has been well done, and whose reputation will not admit of poor execution.

To overcome the possibility of inferior workmanship and the consequent annoyances therefrom many architects make separate contracts for important parts of the building. This enables them to invite bids from good concerns only and this custom is growing in favor much to the relief of those who do only first-class work. This practice is a substantial help to the architect in another way. By the award of a contract to a responsible concern he saves the time and worry of closely following the progress of the work. Every architect knows firms or individuals to whom he can safely leave the details of sub-contracts without danger to the work or to his reputation. While all are in business for profit there are many who appreciate the value of work well done, even though at a loss due to an error in judgment or other cause, and the work does not suffer. The advantage of having a financially responsible contractor is apparent where it is found that the work must be executed at a loss. A good reputation is not to be risked in the saving of a few dollars. The architect, in many cases, never knows that a loss to the contractor has been the result of work well done. The contractor's profit is the confidence of the architect and the preservation of his own good name.

The Boston Library Court.

The future historical student who goes to Boston, is not likely to be satisfied with a visit to Bunker Hill. He will wish to see Copley Square—the battlefield of a generation, where has been waged many a fight involving artistic questions, and where canons of taste ceaselessly reverberate. There has been the fight over the building height restrictions; the excitement as to the Phillips Brooks' statue; the long-drawn-out siege with reference to the replanning of the Square; a skirmish as to the sculpture in front of the library; a rattle of musketry over the gay Bacchante, and now there is sharpshooting in regard to the development of the library's courtyard. This was precipitated by Roger Noble Burnham who, in an exhibition of his work this winter at the Copley Galleries, ventured to show a model for the development of the public library courtyard in the Italian manner. The scheme was generally spoken of as an Italian garden, but that was hardly accurate. It was also spoken of as a "fussy prettyfying of the great, silent, sequestered space." On the other hand, the friends of the project called attention to the courtyard's present condition, with its scrubby grass and prominent ventilator. The story was told of a foreign artist who had mounted the splendid stairs with an ever-increasing feeling of delight and enthusiasm, when the door of the landing invited him to a view of what he fully expected would be a charming scene. "He has not got over his disappointment in finding that the beautiful arcading served merely as a frame of a ventilator—that it contained neither the architecturally paved court, nor the garden of the Italian, but a patch of grass so uninviting that even a 'keep off' sign was not needed." Remembrance, also, is invited of the cortile of the Museo Civico at Palermo, where there is a combination of arcading and foliage, statuary and pool, which is very beautiful. Mr. Burnham's scheme calls for a pavement in two colors which correspond to the present color scheme of brick and stone in the cloisters and bays that flank the staircase, and for four statues symmetrically placed, and for a long pool with broken coping. But the critics of Mr. Burnham say that Mr. McKim desired to leave the court as simple and clear as possible, and that the gift of the little Bacchante was intended to settle the question.



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No. V

THE ARCHITECTURAL RECORD CONTENTS



SERIAL NO.
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PUBLISHED MONTHLY BY
THE ARCHITECTURAL RECORD COMPANY
11-15 EAST TWENTY-FOURTH STREET, NEW YORK

F. W. DODGE
PRESIDENT

HARRY W. DESMOND,

CONTRIBUTING EDITORS
MONTCOMERY SCHVYLER

C. MATLACK PRICE

F. T. MILLER
SEC. & TREAS.

HERBERT D. CROLY

YEARLY SUBSCRIPTION
UNITED STATES, \$3.00
—FOREIGN, \$4.00
SINGLE COPIES, 25c

ENTERED MAY 22, 1902, AS SECOND
CLASS MATTER AT NEW YORK, N.Y.

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DETAIL OF OLD FRENCH WOODWORK
AND MANTEL IN THE DINING ROOM,
RESIDENCE OF OAKLEIGH THORNE, ESQ.
ALBERT JOSEPH BODKER, ARCHITECT.

THE ARCHITECTURAL RECORD

MAY, 1913

VOLUME XXXIII



NUMBER V

SOME RECENT WORK BY ALBERT JOSEPH BODKER

WITH NOTES ON URBAN ARCHITECTURE BY C. MATLACK PRICE

PHOTOGRAPHS BY FLOYD BAKER & OTHERS

I.



WHILE CONTENTIONS as to this or that "style" are rife among critics and dilettanti, and while some are bewailing the depravity of modern tendencies and others are smugly self-satisfied, it is rather an encouraging sign to notice that certain architects in

this country are quietly and earnestly working out their own architectural salvation (as well as that of their profession at large) in buildings at once pleasing, dignified and well-mannered. And this, it is to be remarked, regardless of overstudied considerations of "period" or "style" as such.

The belief that precedent should be studied rather than copied seems to find a few intelligent supporters today, and to be the motive influence behind much sane and well-balanced design of recent years. To traverse the new Fifth Avenue in New York, with detours in the side streets immediately adjacent, is to realize this, and to read in it a strong and hopeful promise for the future.

Few types of building in this country have undergone such radical changes or seen such remarkable developments as the city house. Urban architecture at its best is by way of being a compromise an architectural solution of certain problems, many of which are not architectural. Plumbing, heating, comfortable disposition of a number of servants, elevators, dumb-waiter, service stairs, fire-



ENTRANCE VESTIBULE, RESIDENCE OF OAK-
LEIGH THORNE, ESQ.

Albert Joseph Bodker, Architect.

proofing—and above all, the building laws—would have worried Palladio or Peruzzi more deeply than the profile of moulding or the rustication of a base. Today our architect must be an “admirable Crichton.” If he has more facilities at his beck than the old masters, by the same token his task is complex in an even greater ratio of proportion. He must think of many things besides the disposition of the façade, the paintings on the ceilings or the entasis of a column. He may create an architectural masterpiece, but his name will go down to perdition with his client if one of the electric call-bells fails to work, or a service door is hinged on the wrong side. In the design of the apartment house there are the same all-important and numberless little technicalities, but they are all standardized. They are all grouped under one general formula, more complex from year to year, it is true, but still a formula, and the architect may feel

greater freedom in matters more directly concerning design. When he has complied with a certain set of fixed rules he is free to exercise his own ability and ingenuity as a designer. In the city house, however, there are the same general requirements of hygiene, fire protection, practical convenience and the mechanics of plumbing and electricity, but all subject to constant change, revision and variation at the hands of the owner, who, as he sometimes reminds the architect, is “putting up” the money, and must have a push-button three inches up or down or right or left if it necessitates redesigning an entire floor.

The point is that urban architecture today is a great deal more than architecture as understood in terms esthetic, and sometimes the proverbial needle’s eye seems to the architect a wide portal in comparison with the way he must travel if he is to come forth not only the architect, but the *successful* architect of a modern city dwelling.

Perhaps it is not remarkable that many of our city houses are more practical than architectural, but rather that so many of them are architectural at all. Possibly some designers would not have detailed a cornice quite so great in projection for the Chesebrough house, but there is a contingency far more imminent than mere possibility that many designers would have done something far worse. Even if this particular were more noticeable, however, it would be more than offset by certain niceties in other details. There is a careful expression of scale in the minor divisions of the windows, as well as in their larger relations, and a general sense and of “fitness” which grows upon one leaves a pleasant impression.

It is interesting in this connection to know that Mr. Bodker spent a year in the earlier part of his career in the office of McKim, Mead and White—and to have known McKim is to know detail in terms never to be forgotten. The influence of a master architect may live long after his death, and it is not drawing too freely on the imagination to detect, in certain phases of this detail, some reminiscence of the master.

II.

A noticeably successful designer of the present day city house *de luxe* is Albert Joseph Bodker, whose work presents several interesting aspects, and who may be taken as one of those individuals alluded to before who are quietly and earnestly contributing to a sane and dignified sort of architecture in this country.

When his work is carefully studied, its character assimilated and the impression registered, it is interesting to know that he never studied in Paris—a fact which might be wielded mightily by those harsh critics of the school of the Beaux-Arts, whose pent-up feelings so often break out in bitter revilements of console and cartouche. That there is much of good in the French methods of “studying” a design cannot be denied by any intelligent architect or amateur. Yet even those who would give to the Beaux Arts every other letter in the alphabet

cannot concede the alpha and omega as well, in the face of intrinsically and independently excellent examples from the hands of designers who never so much as sharpened a pencil in Paris.

One does not need to be proud of never having studied in the great *Ecole*, but one is permitted to be proud of obvious success which cannot be traced to that source.

Mr. Bodker's designs for apartment houses show, perhaps, a little more freedom in certain respects, but a commendable fitness for their purpose. It is an interesting fact, and an encouraging sign for the profession in America that real estate operators and owners are yearly attaching more and more importance to the architectural quality of the apartment houses which they erect. They are beginning to think that perhaps there is some relation between good architecture, or at least architecture which is “smart,” and high rents. A five room



DETAIL OF AN APARTMENT HOUSE; NO. 40 EAST 62D ST., NEW YORK CITY.
Albert Joseph Bodker, Architect.

apartment in a new building on Park avenue might rent for seventy-five dollars a month, but if it can be described as four rooms and a "spacious foyer" the same suite will bring ninety or a hundred. So much for "architectural fashions." We are "foyer" mad, and while any plan which eliminates the old-fashioned long, dark apartment hall is a good one, there are considerations of light and spaciousness in some of the other rooms which must be taken account of. To return to the exterior design for a moment, there seems to be growing a definite ratio between the rental and the ability of the architect employed to design the house, and we can remember the old days when any speculative builder or general contractor undertook to put up apartments from his own "plans," or with plans procured as cheaply as possible. High architectural fees are now coming to be reckoned as an essential part of the initial investment by the owner and operator. It is to be

inferred that the whole question is now regarded as a vastly important development from the fact of the establishment by the New York Chapter of the American Institute of Architects of "The Apartment House Medal." The significance lies in the fact that the medal is awarded not to the architect, but to the owner of the building approved by the jury. The aim is obviously to encourage and stimulate rivalry among owners and operators of city real estate to elevate all past standards of apartment house building. The points taken into consideration are the general excellence of exterior appearance, general good taste and architectural judgment regarding adjacent property, adaptability and cleverness of plan and honesty of construction.

This recognition by the American Institute of Architects, combined with the rising trend of popular demand and the corresponding rise of foresight and taste on the part of owners and syndicates,



MAIN ENTRANCE HALL, APARTMENT HOUSE, 393 PARK AVENUE, NEW YORK CITY.
Albert Joseph Bodker, Architect.

brought to bear upon it all the native wit and invention with which, as a race, we are often credited by Europeans. For all that American architecture may be held up to depreciation, as a patchwork composite of borrowed motives and imported styles, no detractor can intelligently state or substantially prove that architects of any other country excel the American in practical matters of innovation, where no precedent obtains, and where sheer inventive ability alone counts. Certainly the apartment is a type of building in the design of which the architect must be his own law, must effect his own solutions of the problem in terms at once practical and esthetic.

It is evident that Mr. Bodker is to be reckoned as one of a number of architects who have devoted a good deal of study to the apartment house problem, with considerable success. In the exterior and interior sketches illustrated there is noticeable an able grasp of the fundamental ideas underlying this type of building. It is a little unfortunate that the speculative element in apartment house building often results in the



AN APARTMENT HOUSE, 393 PARK AVENUE,
NEW YORK CITY.

Albert Joseph Bodker, Architect.

has led to developments paralleled in no other country. And American architects, even if they are not always original, are certainly adaptable in the ingenuity and enthusiasm which they bring to bear on new problems. The apartment house being such, they have



ENTRANCE DETAIL, APARTMENT HOUSE, 393
PARK AVENUE, NEW YORK CITY.

Albert Joseph Bodker, Architect.



SKETCH FOR AN APARTMENT HOUSE.
ALBERT JOSEPH BODKER, ARCHITECT.



AN APARTMENT HOUSE AT 93D STREET AND
CENTRAL PARK WEST, NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.



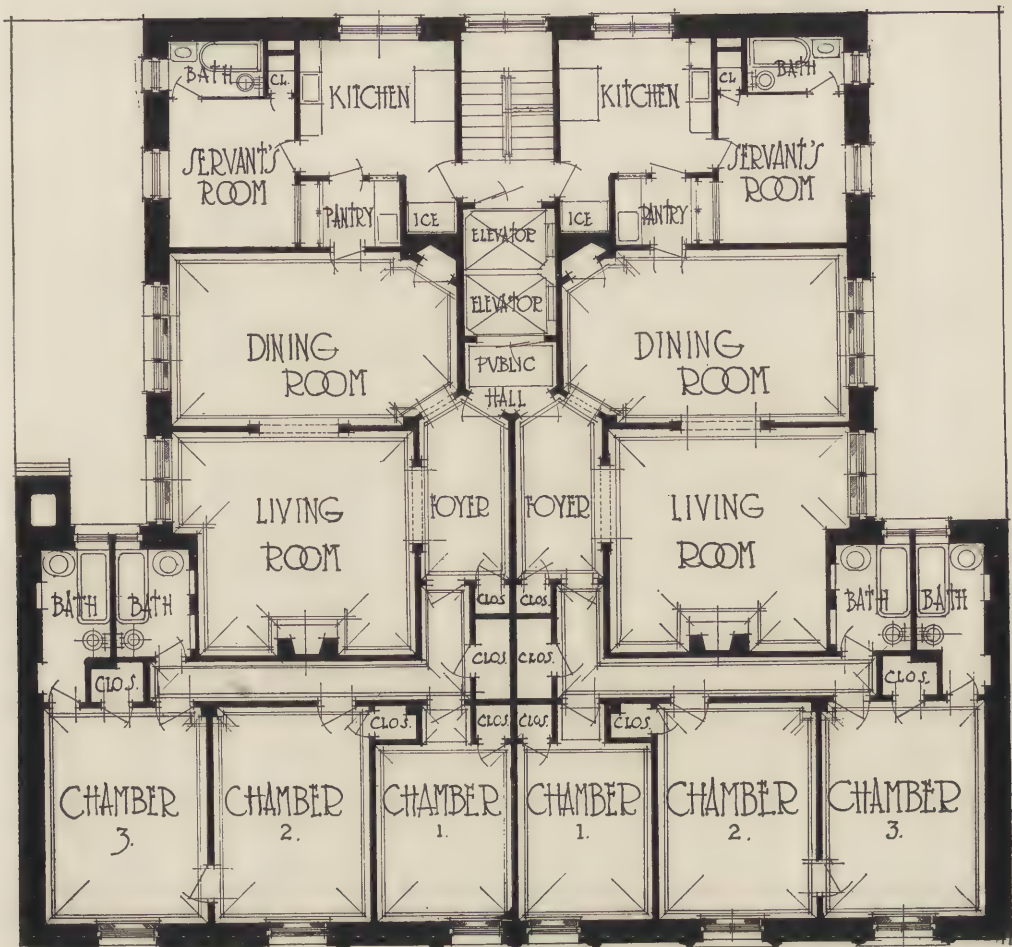
SKETCH FOR AN APARTMENT HOUSE.
ALBERT JOSEPH BODKER, ARCHITECT.



SKETCH FOR AN APARTMENT HOUSE INTERIOR.
ALBERT JOSEPH BODKER, ARCHITECT.



SKETCH FOR AN APARTMENT HOUSE INTERIOR.
ALBERT JOSEPH BODKER, ARCHITECT.



TYPICAL FLOOR PLAN, APARTMENT HOUSE AT 383-387 PARK AVENUE, NEW YORK CITY.

Albert Joseph Bodker, Architect.

elimination (for reasons of initial cost) of many essential features of the architect's original drawing, yet this is only one of the restrictions which must be met as cleverly as possible. When it becomes generally recognized by owners and building syndicates that every dollar expended in architectural excellence can be reaped many-fold in higher yearly rentals, we may expect to see even a better type of apartment house than has recently been developed.

The development in the last decade has been amazing, and under conditions where architects are given even greater latitude than today it is difficult to predict the exact attainment in the apartment house of the future, considered

either as a monument of practical details or of architectural ideals.

Critically consider the general aspect of the residence of Robert Chesebrough, in New York City. There is no architectural nonsense about a building of this sort. It is severe enough to escape any danger of appearing frivolous, yet human enough not to be austere. It is a piece of design wherein is not to be seen the hand of the fanatical classicist (who would design a Doric garage), the frenzied "Beaux-Artist," who prepares *a-la-carte* detail on the order of the creations of a French *chef*, nor yet any of the fantastic originalia of the innovator, who thinks, when pressed, that Sir Christopher Wren was very well as



RESIDENCE OF ROBERT A. CHESEBROUGH,
ESQ., 870 PARK AVENUE, NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.



STAIR HALL OF ATTIC FLOOR, RESIDENCE
OF OAKLEIGH THORNE, ESQ.
Albert Joseph Bodker, Architect.

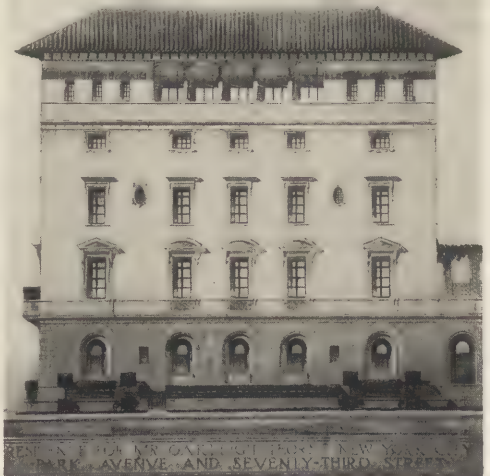
lems of the city house. And it was required to give the room to the right, the reception room, the full width, with two windows. The entrance vestibule is flanked left and right by the elevator and a large closet, and gives, to the right into the reception room.

The Georgian treatment of the entrance hall is better in itself than in relation to the exterior character of the building, and a fit and pleasing transition to the quietly dignified Georgian drawing room. On the first floor are also the kitchen, the servants' dining room, the laundry, ice-room and other utilitarian accessories.

The second floor, the *premier étage* of the French house, is occupied by the foyer, over the entrance below, with the Georgian drawing room to the right, and running the entire width of the lot. To the left, the dining room, with a door to a "den" and to the pantry, which rooms divide the width of the building. The library, with two bed-rooms and a large bath, with sundry closets, make up the third-floor lay-out. The remaining two

floors contain other bed-rooms and the accommodation for servants, though the plan for this house is not, in many respects, so interesting as that of the Oakleigh Thorne residence.

The recently completed residence for Oakleigh Thorne, Esq., in New York City, is an interesting fabric wherein old and new are woven together with an artful artlessness productive of a peculiarly interesting result. It is essential to state at the outset that the architect's problem here was three-fold—to devise a dignified and pleasing exterior, a practical and an esthetic interior, and to accommodate the plan to certain complete rooms which were brought over in their entirety from France. The panelling of one of these rooms called for windows of a certain distance apart, which, as can readily be guessed, formed a compulsory governing factor in the fenestration of the entire 73d street façade. A study of the appearance and arrangement of what is certainly an absolutely unique house, is a study no less interesting for the architect than for the decorator, nor less interesting to either than to a connoisseur of old and veritable French "*boiseries*."



AN EARLY SKETCH (1910) FOR THE OAKLEIGH
THORNE HOUSE, SHOWING "SGRAFFITO"
DECORATIONS.

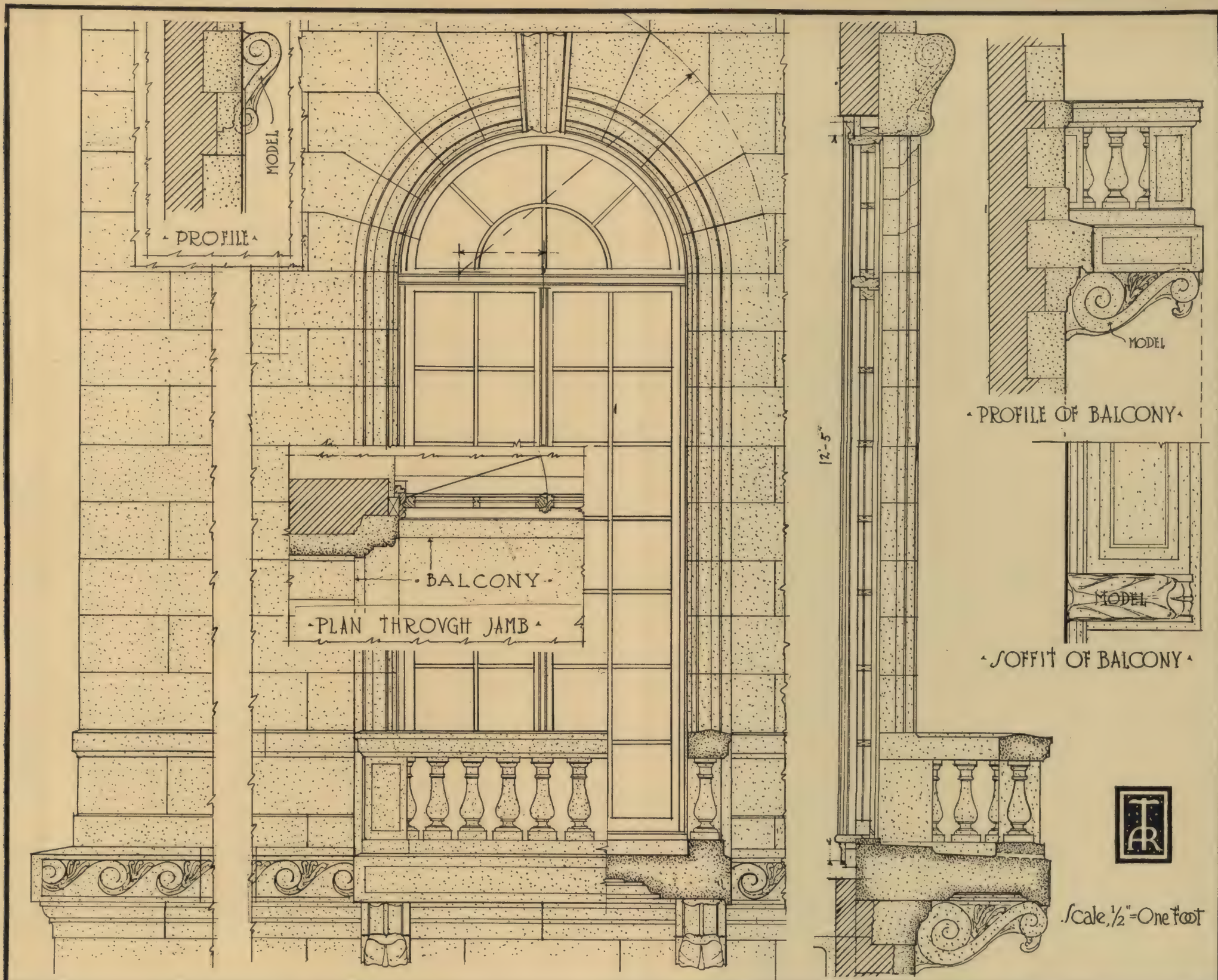
Albert Joseph Bodker, Architect.

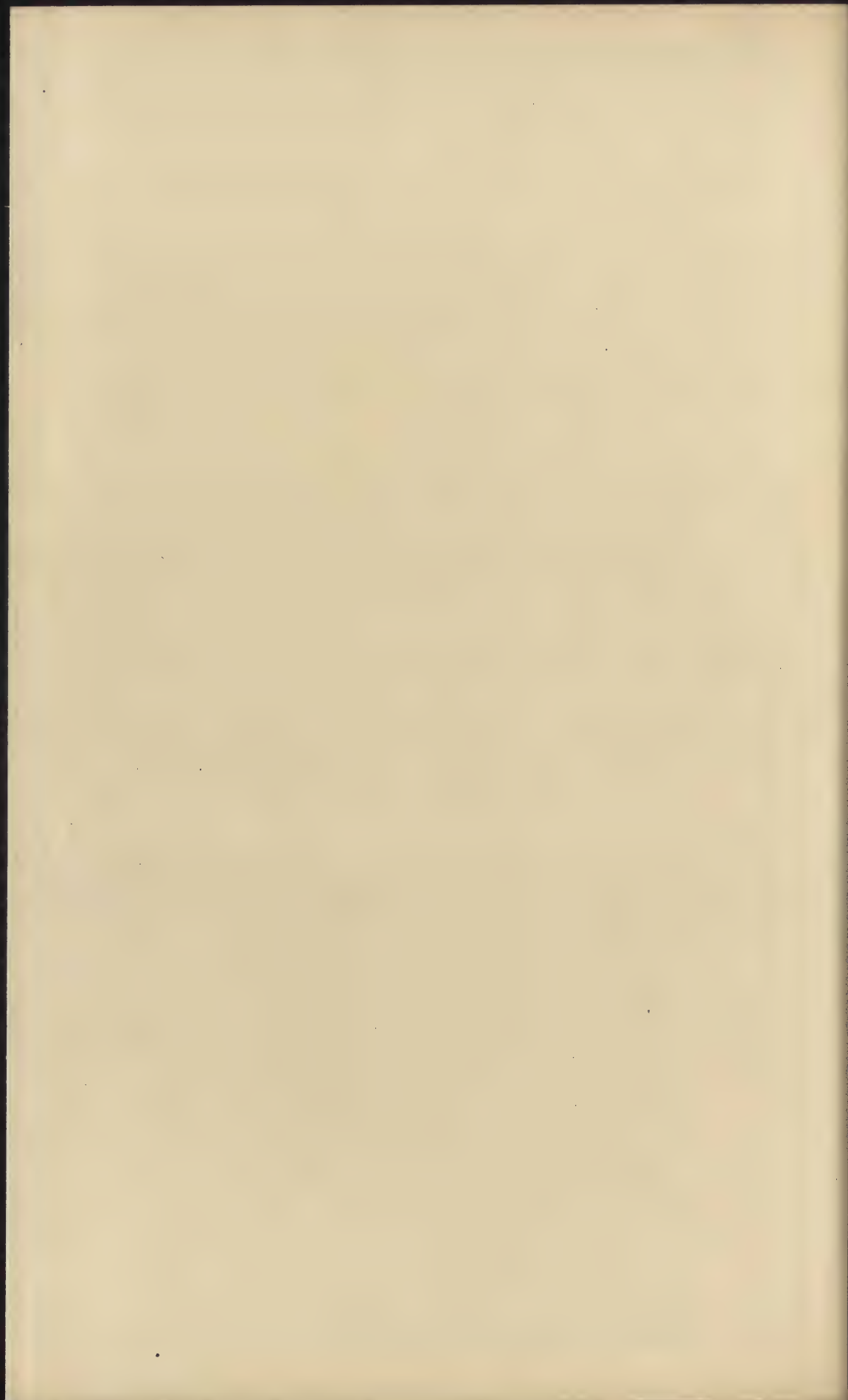


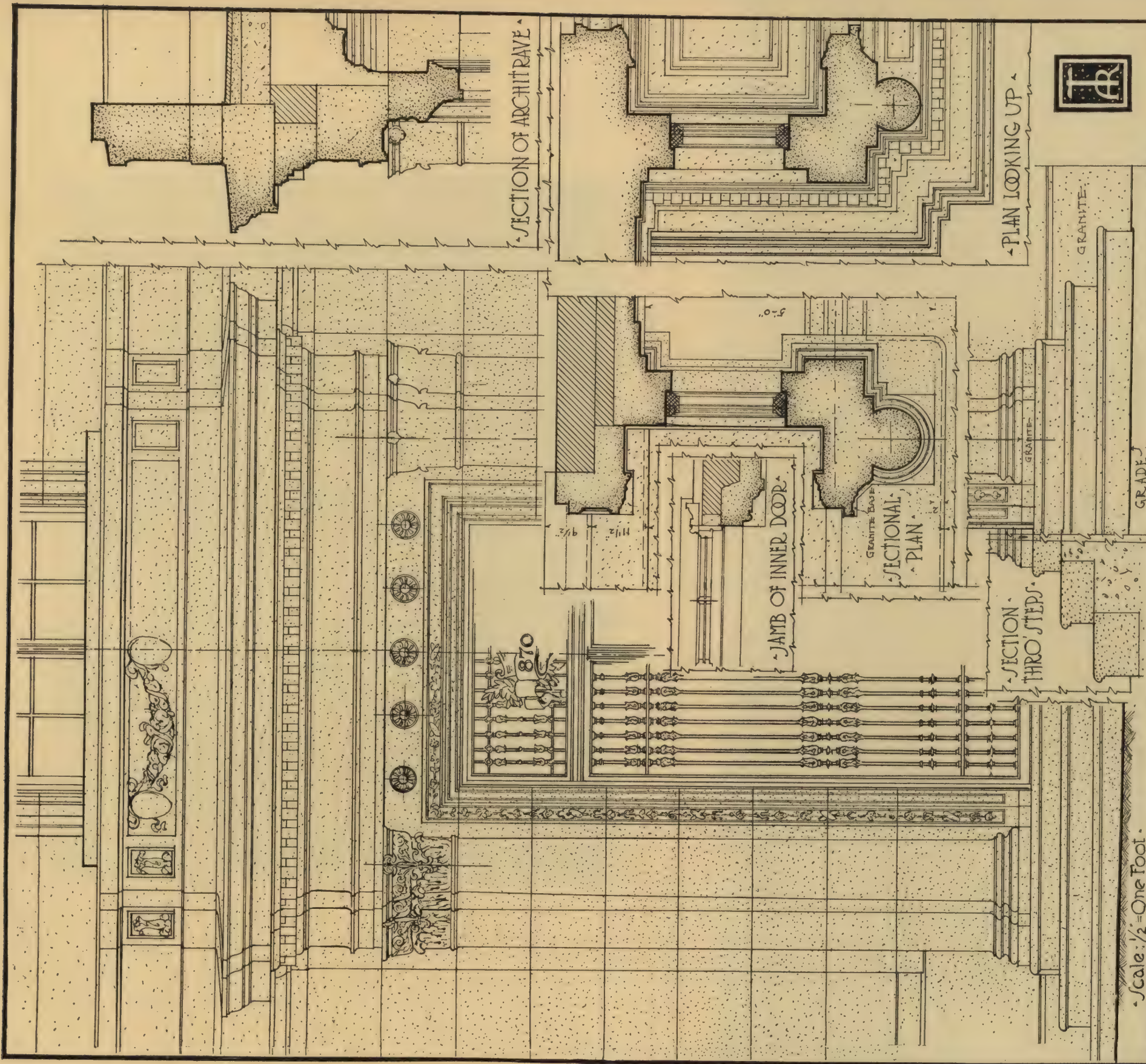
THE STAIR HALL, RESIDENCE OF ROBERT
A. CHESEBROUGH, ESQ., NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.



ENTRANCE DETAIL OF RESIDENCE OF ROBERT
A. CHESEBROUGH, ESQ., NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.



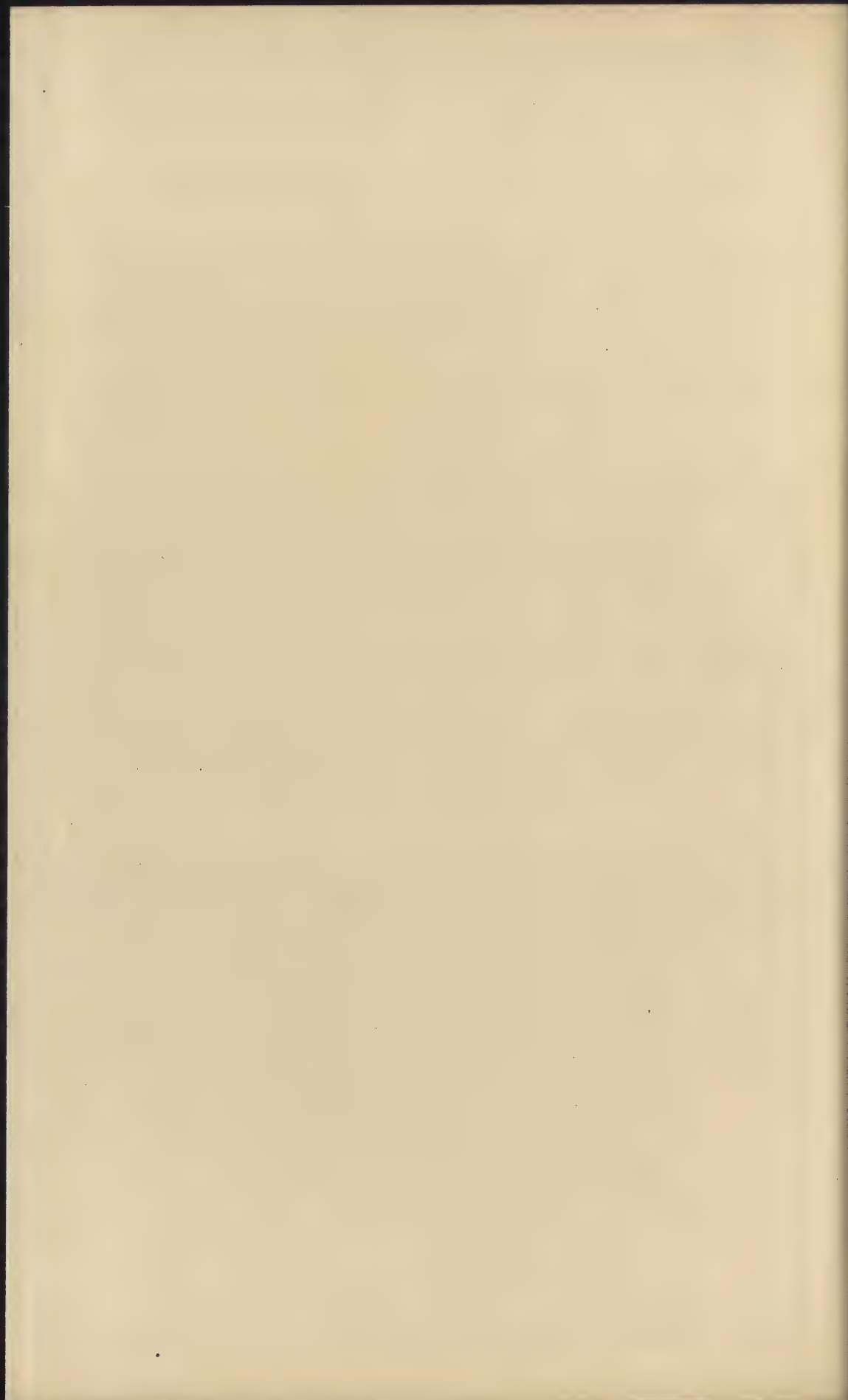




ARCHITECTURAL RECORD
 DETAIL PLATE No 1
 ISSUE OF MAY 1913

DETAILS OF ENTRANCE: RESIDENCE OF
 ROBERT A. CHESEBROUGH, ESQ., NEW YORK CITY

ALBERT JOSEPH BODKER,
 ARCHITECT





THE DINING ROOM, RESIDENCE OF ROBERT
A. CHESEBROUGH, ESQ., NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.



THE DINING ROOM, RESIDENCE OF ROBERT
A. CHESEBROUGH, ESQ., NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.



THE DRAWING ROOM, RESIDENCE OF ROBERT
A. CHESEBROUGH, ESQ., NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.



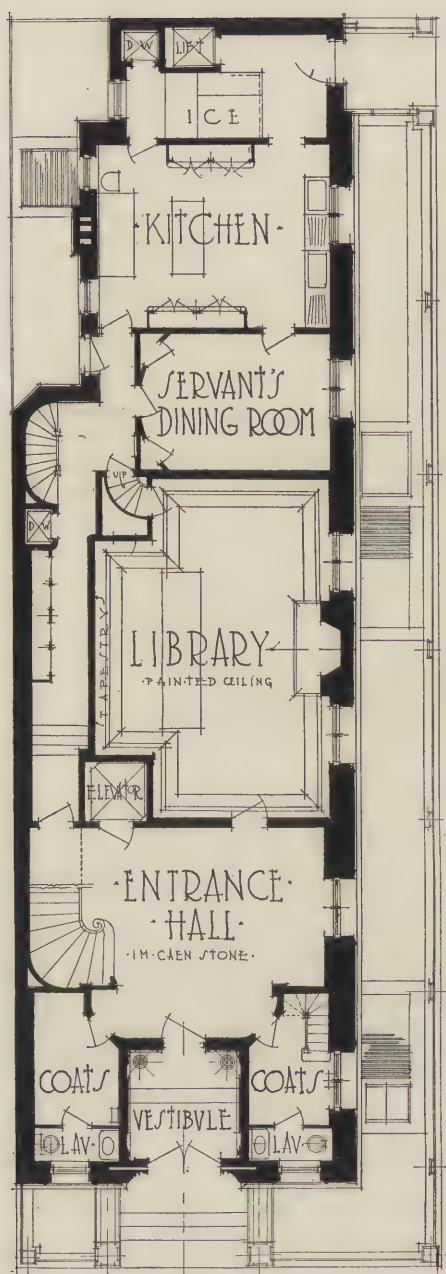
ENTRANCE DETAIL OF THE RESIDENCE OF
OAKLEIGH THORNE, ESQ., NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.



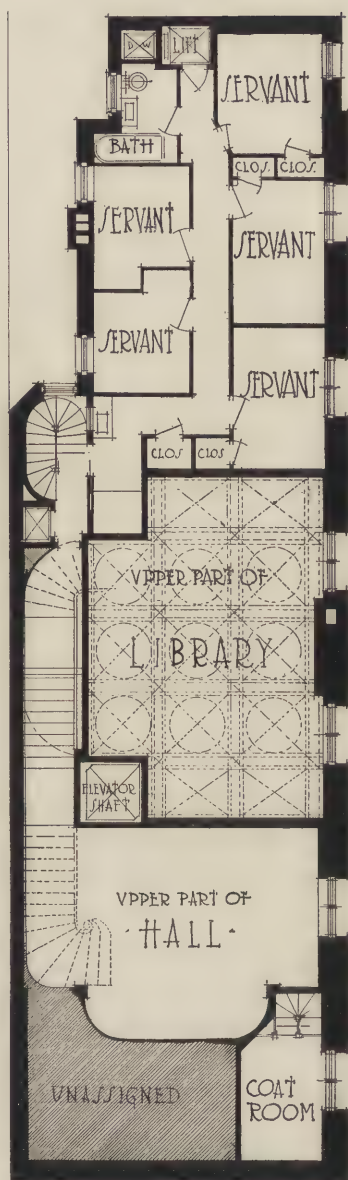
RESIDENCE OF OAKLEIGH THORNE, ESQ.,
783 PARK AVENUE, NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.



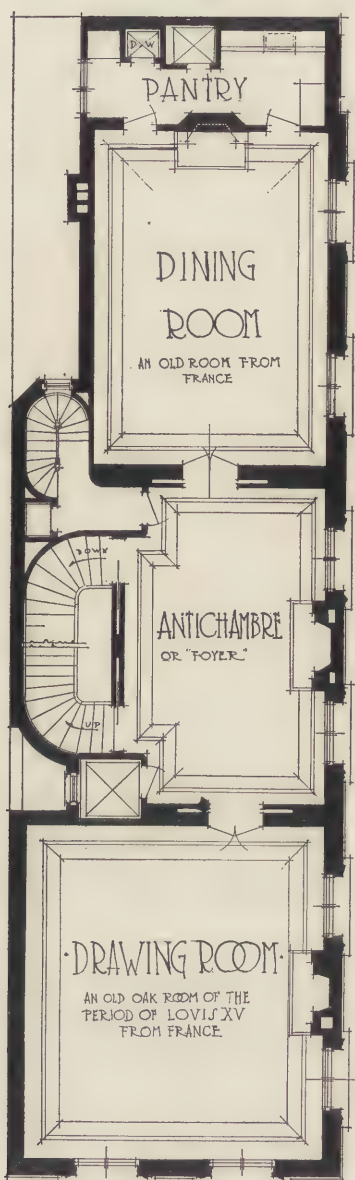
ENTRANCE HALL, RESIDENCE OF OAK-
LEIGH THORNE, ESQ., NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.



First Floor Plan.

Mezzanine Floor Plan.
(Between 1st and 2d Floors.)

PLANS OF THE RESIDENCE OF OAK-
LEIGH THORNE, ESQ., NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.



SECOND FLOOR PLAN, RESIDENCE OF
OAKLEIGH THORNE, ESQ.
Albert Joseph Bodker, Architect.

The exterior presents no features which could be considered sensational—and here as a preliminary note is a quiet conformity with the character of the house itself. The original scheme under consideration was for a much larger house, in the style of the Italian Renaissance, with tile roof and with

decorations in "sgraffito." The acquisition by Mrs. Thorne of some very remarkable old French rooms obviously caused a change to the style of the French Renaissance—that urbane and architecturally dignified style that is best expressed, perhaps, by the character of Little Trianon. And here, to imprint that definite character upon the building unmistakably, the windows of the second story—the French *premier étage*—are detailed in close adaptation of the Little Trianon windows. Another detail, one so characteristic of the period as to be almost a symbol, is the oval window with a garland above it, simply, but effectively, introduced in the entrance front. There is little to be said about the exterior, and therein, if the truth were known, lies its merit. The best period of the French Renaissance was successful and pleasing in exact proportion to its restraint and repression—not to its profusion or elaboration.

Passing through an almost severe vestibule, treated as caen-stone, and decorated only by two marble wings, this vestibule gives into a lofty entrance hall, also with the caen-stone treatment, and with a tessellated marble floor and artfully wrought iron stair rail. Old carved wooden doors, among the other architectural treasures brought from France, give an intimation of revelations to come. To the left, the elevator door, and to the right, a vista of the library presents itself. In the entrance hall there are two deftly disposed coat rooms, equipped with all the minor luxuries of similar rooms in our up-to-date hotels—a recent innovation in the accommodations of the city house.

The library is a cool-toned room with plain walls in a cold yet rich blue, entirely relieved on the north wall by an enormous and unusually beautiful tapestry. The doorway through which this library is entered from the hall is a beautifully carved, painted and gilded replica done by Salvatori—a marvelously skilled artist-craftsman of Florence. From the same hand came the ceiling of this room, artfully painted on ancient wood, and in a combination

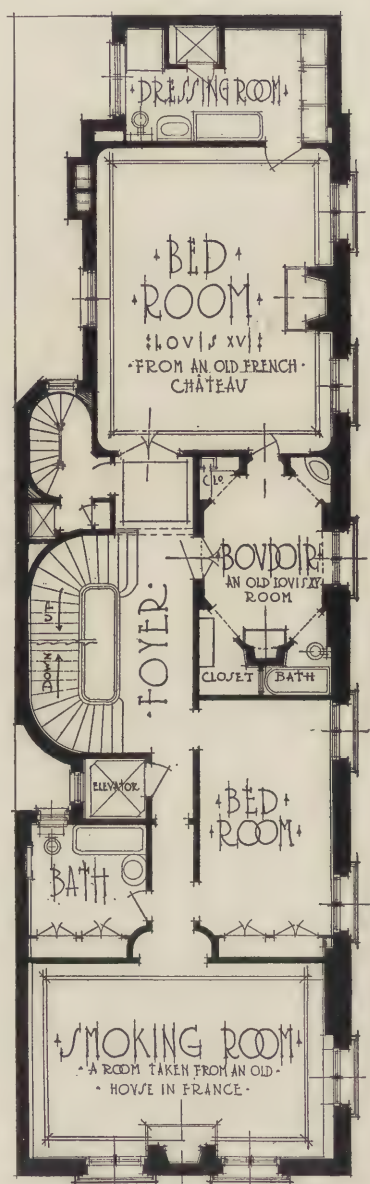
of colors and tones and dull gilt so rich, so subdued and so harmonious as to defy the faintest supposition that there is any particle of modernity in the work whatsoever. Salvatori, indeed must have some lingering trace of that inimitable art of the great Italian Renaissance. I do not think, indeed, that this ceiling is an imitation, but rather a re-incarnation of one that might have been in Italy in the 14th century.

Examination of the remainder of the plan of the entrance floor will show that the space from the east wall of the library to the back of the building is compactly occupied by the servants' hall, the kitchen and a domestic office, which an English architect would probably call the "scullery." Here is accommodation for ice and for receiving other supplies, and a goods lift and dumb-waiter assure ample and swift communication between this very important domain and the rest of the house.

The additional height of the entrance hall and the library is taken up as shown on the second plan (illustrated on page 403) by a very convenient mezzanine floor in the rear, easily accommodating rooms for five servants and a bath, as well as sundry closets, a porcelain closet for fresh flowers and a sink, etc., for the daily disposal of these in vases throughout the house.

It might be mentioned with considerable emphasis that the private self-operative elevator has more or less revolutionized the planning of the city house. To be sure, it is one more mechanical detail to reckon with and after the several stair-landings are taken care of, the elevator doors must be considered—but, on the other hand it makes possible the introduction of the aforementioned useful mezzanine. One steps into the elevator at the entrance floor, from the hall and alights at the second floor, having unconsciously run by the mezzanine floor, of which the very existence would remain unknown and unsuspected if the hostess were not giving a complete "tour of inspection."

Alighting, then, at the second floor, access is had to one of the most inter-



THIRD FLOOR PLAN, RESIDENCE OF OAKLEIGH THORNE, ESQ.

Albert Joseph Bodker, Architect.

esting of the interiors. It is the work of a remarkable French artist-connoisseur, Alcine d'Albret, and is fashioned with infinite care for conformity with the dining-room, which is an example of veritable "period," and which is reached through the doorway at the east end. In this country we are prone



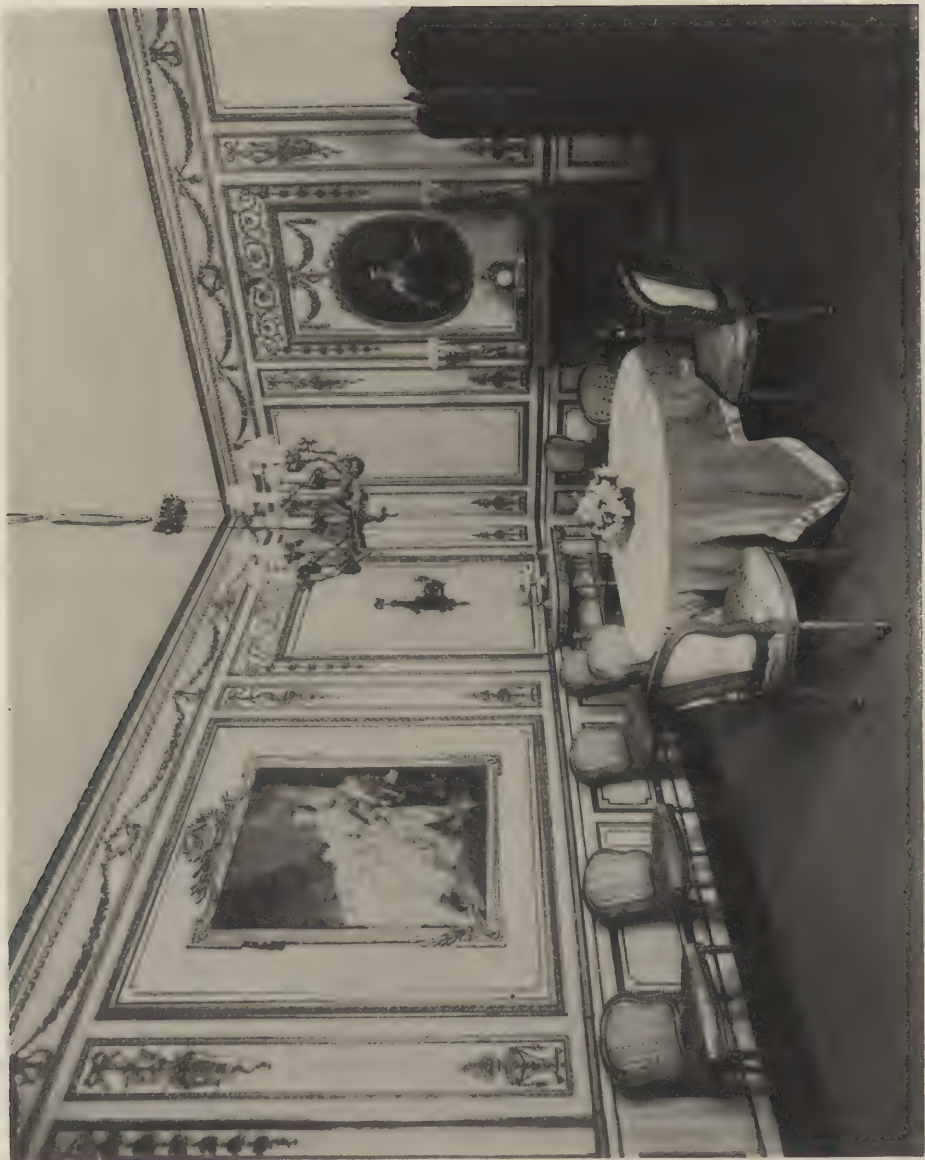
DETAIL OF THE LIBRARY CEILING, RESIDENCE
OF OAKLEIGH TUORNE, ESQ. NEW YORK CITY.



THE LIBRARY, RESIDENCE OF OAK-
LEIGH THORNE, ESQ., NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.



THE "ANTECHAMBRE," OR SECOND FLOOR FOYER, RESIDENCE OF OAKLEIGH THORNE, ESQ., NEW YORK CITY.



THE OLD FRENCH DINING ROOM, RESIDENCE
OF OAKLEIGH THORNE, ESQ., NEW YORK CITY.



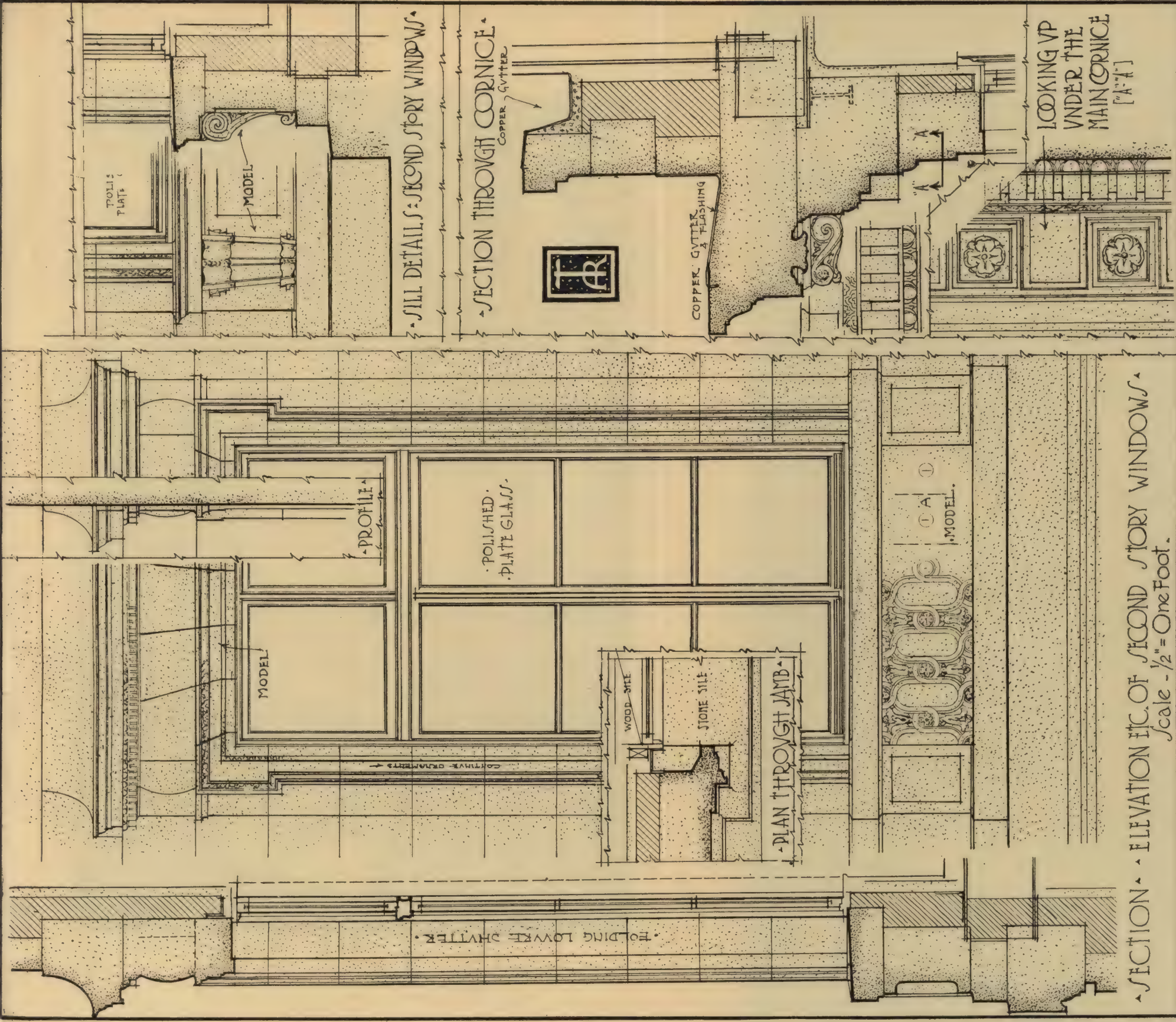
DETAIL OF OLD FRENCH DINING ROOM, RESIDENCE
OF OAKLEIGH THORNE, ESQ., NEW YORK CITY.



THE SALON, AN OLD FRENCH ROOM (LOUIS XV), REST-
DENCE OF OAKLEIGH THORNE, ESQ., NEW YORK CITY.



PERSPECTIVE OF 73D STREET FACADE, RESIDENCE
OF OAKLEIGH THORNE, ESQ., NEW YORK CITY.
ALBERT JOSEPH BODKER, ARCHITECT.

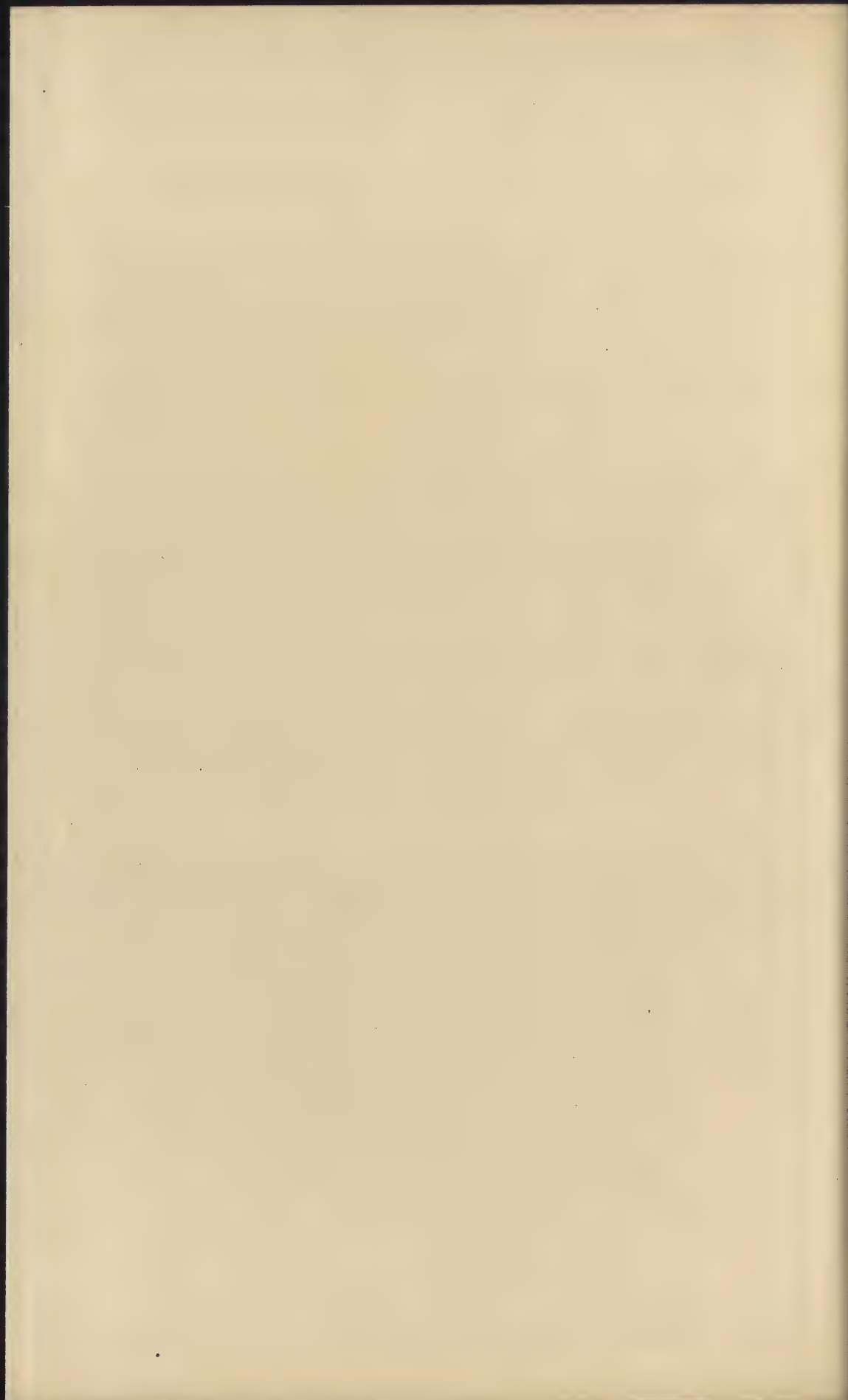


SECTION - ELEVATION ETC. OF SECOND STORY WINDOWS.
Scale - 1/2" = One Foot.

ARCHITECTURAL RECORD
DETAIL PLATE No 3.
ISSUE OF MAY 1913.

DETAILS OF THE RESIDENCE OF
OAKLEIGH THORNE, ESQ., NEW YORK CITY.

ALBERT JOSEPH BODKER,
ARCHITECT.





THE SMOKING ROOM, WITH OLD WOODWORK AND TAPESTRIES
(LOUIS XV), RESIDENCE OF OAKLEIGH THORNE, ESQ., NEW YORK CITY.



DETAIL OF OLD FRENCH BEDROOM, RESIDENCE
OF OAKLEIGH THORNE, ESQ., NEW YORK CITY.



DETAIL OF OLD FRENCH BEDROOM, RESIDENCE
OF OAKLEIGH THORNE, ESQ., NEW YORK CITY.



A BEDROOM, RESIDENCE OF OAKLEIGH THORNE, ESQ.

Albert Joseph Bodker, Architect.

to blithely designate the second floor "*antichambre*" as a "*foyer*"—and though this designation would offer an insoluble puzzle to a Frenchman, it is, perhaps, the most expressive and understandable word for the United States. This is for the reason that not only it is the connecting apartment between the old dining-room and another remarkable old room, the salon, at the front of the house, but because the stairs, up and down, give into it, as well as the concealed elevator door.

An interesting structural precaution, and one which was skillfully and effectively carried out is the introduction of concealed, sliding fireproof doors in all the openings. In the illustration of the "second floor foyer" the sliding door protecting the opening of the ascending flight of stairs is shown wide open and the fire door of the descending flight, balancing it, is closed.

The skill with which the panelling of this exquisite *antichambre* is conceived and executed must be seen to be appre-

ciated—the nice alignment of parts, the restraint of the detail and the everpresent perfection of scale, qualities more characteristic of the latter work of the period of Louis XIV and of certain phases of that of Louis XVI than of any work of the Louis XV period—the living spirit of a past decorative epoch masterfully seized and consummately rendered by Alcine d'Albret. It is necessary that one know every moulding as surely as one knows the letters of the alphabet to produce a work such as this. It is not, as I have said before, a question of imitation, but of re-incarnation. One cannot copy a period and achieve such a result—he must relieve it and make his mind, at least, a part of it.

The only colors other than those in the paintings (which, by the way, are introduced in remarkable conformity with the period) are white, slightly "aged" and dull, yet rich gold. This very simple, but very effective decorative scheme, is an echo of the dining room, which makes M. d'Albret's artifice in the "*antichambre*" the more marvellous by reason of the perfect similarity of the two rooms in character and spirit. Again, in this room, as in the outer room, which was inspired by it, there is the same nicety in the alignment of members and parts, the same restraint of detail and the same absolutely faultless accuracy in scale. This old room was originally made, it is said, for a Cardinal, and was painstakingly restored by M. d'Albret in a manner impossible of achievement by anyone not possessing his unique knowledge of old "*boiseries*" or his inspired love for their most infinitesimal niceties of detail. The studious attention which he would devote to one moulding, his consideration of it and his comparison of it with others, in short his conscientiousness, is a silently accusing arraignment of a good deal of slap-dash guess-work in this country.

Further perfection has been given to this already amazingly perfect dining-room by the care exercised in the scale of such accessories as the chairs, the



THE BOUDOIR—AN OLD FRENCH ROOM OF THE PERIOD OF LOUIS XV—RESIDENCE OF OAKLEIGH THORNE, ESQ.

Albert Joseph Bodker, Architect.

console tables, the chandelier and ornaments on the mantel-piece, as well as the mantel-piece itself and the wall sconces over it. It is a French room, essentially, but it is one which has made itself so quietly at home in this country as to go on record as a proof that the exquisite phase of French architecture which it represents is so gracious and urbane as to be veritably "*cosmopolite*." Incidentally, it was the panelling between the two windows of this beautiful room, which governed the fenestration of the entire long façade of the house. Not one millimeter of difference, this way or that, would M. d'Albret allow in the trans-Atlantic installation of a so-precious "*vrai antique*" as this dining-room. It was with a certain quiet misgiving that he learned of Mrs. Thorne's intended exportation of this, and other works from France,

and his peace of mind returned only upon her suggestion that it was a fine thing, *magnifique, splendide*, that these beautiful interiors might come as an inspiration (as indeed they do) to Americans, both lay and professional.

Leaving the dining-room and traversing the "*antechambre*," there is, at its west end, a door corresponding to the dining-room door and giving into a great salon. Here is a room which even the chronic defamer of the decorative style of the "period of Louis XV" must concede to be beautiful: The wood is dark oak, the only application is dull gilt on certain mouldings, and on the "musical attributes" in the over-panels—attributes suggesting that long ago this exquisite salon was a music room. A small book might be written in analysis of this room—of the grace-notes and variations in the panelling, for it is a



DETAILS OF CARVED WOODWORK IN THE
DINING ROOM, RESIDENCE OF OAK-
LEIGH THORNE, ESQ.

fascinating room and (what is remarkably rare) a really perfect example, and a pure example of the best phase of the decorative work of the period of Louis XV. If it does not surpass the examples in the recently arranged wing of "decorative arts" in the Metropolitan Museum, it fully equals them.

On the third floor, at the front of the house, is the smoking-room, interestingly fashioned from beautifully carved old French woodwork, of the period of Louis XV, and decorated with tapestries of the same period. Interesting as these are they seem a little out of scale with the room, and, seem, as well, a little rigid and flexible by reason of being stretched tight instead of hanging loose.

In addition to this room, and separated from it by a bedroom and bath, there is another beautifully carved room brought over from France, a bedroom giving into a small octagonal boudoir in oak. The wood carving in the bedroom, as well as in the boudoir, is marvellous in this day of short-cuts to the same effect by means of various plastic compositions. In each corner of the bedroom, the corners are gracefully rounded and are decorated with delicately modelled "attributes" of the four seasons. This room is believed to have come originally from an old French country house and though the painted lunettes over the two doors on the east wall were not originally a part of this room, they are in beautiful conformity with it.

The fourth floor is occupied by the housekeeper's bed-room and sitting-room, other bed-rooms and a maid's room, baths, closets, etc., and the attic floor with more servants' quarters, a large cedar closet, the house tank, trunk-room, etc., etc.—the whole making a compact dwelling which presents not only accommodations for the practical needs of a household run on thoroughly efficient basis, but which presents, as well, unique decorative values. There have been many copies and imitations, good, bad and indifferent, of French "period" interiors, but here are the actual rooms, skillfully installed in

a modern New York City dwelling. Certainly this is not "American Architecture," but it is an evidence that a connoisseur possesses not only keen architectural appreciation, but also a desire that such perfection as was attained in France may serve as a model and incentive in this country.

That the appearance of a country house is incalculably enhanced by well-grown planting could not be more graphically evidenced than in the Herbert A. Wheeler, Esq., residence at Hartsdale, N. Y. Here is a rendering of the "picturesque" suggestive of some work by other residential architects, but indicative of a cursive personal freedom. Owing to the placement of the chimney the front elevation seems more pleasing than the garden elevation.

The spacious living room of this house, surprisingly large for a dwelling of the size, is illustrative of the soundness of an excellent theory, often propounded but rarely followed—that a few large rooms are infinitely to be preferred to a labyrinth of small ones, with good floor space wasted by useless passages, and cut up by narrow doorways.

While Mr. Bodker is not one of those architects whose forte is versatility, it seems evident that he possesses an architectural instinct in the design of that refined type of semi-commercial architecture which has recently come into being in New York, as is evidenced by his façade at 601 Fifth Avenue.

In conclusion it may be fitting to state that the measure of an architect's work may not always be had from what he has done, but often from what he has not done, and although this might be reckoned as a rather vague, if not an actually negative, criticism of Mr. Bodker's work, perhaps it is more apt than any other. In the Chesborough and Thorne houses, from the point of view of their exterior aspects, the architect has not tried to impress the passer-by with how many architectural details he knew. For this there is much to be thankful, for it is well to design with the thought that one is designing one



COMMERCIAL BUILDING AT 601 FIFTH AVENUE, NEW YORK CITY.

Albert Joseph Bodker, Architect.

building at a time. After all, this is a quality no more subtle than common discrimination, which, coupled with a certain amount of fundamental architectural knowledge, a certain amount of taste and a good deal of restraint will go far toward the development of a distinctive type of design in this country.



RESIDENCE OF HERBERT A. WHEELER, ESQ., HARTSDALE, N. Y.
Albert Joseph Bodker, Architect.



THE DINING ROOM, RESIDENCE OF HERBERT A. WHEELER, ESQ., HARTSDALE, N. Y.
Albert Joseph Bodker, Architect.



RESIDENCE OF HERBERT A. WHEELER, ESQ., HARTSDALE, N. Y.
ALBERT JOSEPH BODKER, ARCHITECT.



LIVING ROOM. RESIDENCE OF HERBERT
A. WHEELER, ESQ., HARTSDALE, N. Y.
ALBERT JOSEPH BODKER, ARCHITECT.



LIVING ROOM, RESIDENCE OF HERBERT
A. WHEELER, ESQ., HARTSDALE, N. Y.
ALBERT JOSEPH BODKER, ARCHITECT.



- J. M. ROSE -
BRISTOL COUNTY COURT HOUSE
- NEW BEDFORD -



THE PAST CENTURY CHARM of NEW BEDFORD



BY GRACE NORTON ROSE
PENCIL DRAWINGS
BY JACK MANLEY ROSE



OR alone do the old gray wharves and stone warehouses tell of New Bedford's interesting past. If you climb up the narrow cobbled streets that lead steeply through the business section to the elm-arched cross-roads beyond, you will find quaint old houses

with tiny walled gardens, and tall-pillared residences set back in their spacious grounds; that speak eloquently of the best the past century had to offer.

Bedford village in Dartmouth, was founded by Joseph Rotch of Nantucket in 1765, some years after Massachusetts Bay Colony bought and settled Dartmouth at the town of Oxford across the river. There are a few architectural remains of this, the first settlement, and at the Head-of-the-River an old Meeting House with its two stone chimneys and two old fire places, several rough houses of the first settlers, and a stone bridge of Revolutionary fame, still stand. Here, too, can be found the location of Russell's garrison, where the Colonists fled for refuge during King Philip's war. In fact these townships abound with relics of our country's earliest days, but the charm of New Bedford itself centers about the architecture of a later period.

The little city has suffered so much in the past: first at the hands of the Indians, and later from the British under Major Gray. Fire, pillage, and commercial progress have done their best to obliterate all traces of Colonial days and the times of the Union's infancy; but fair and truthfully stand the milestones

of the city's growth from the Revolutionary period to the zenith of its prosperity and success. The sturdy wharves, the great warehouses, ship lofts, rope walks, and candle works, all proclaim this. Virtually gone now is the busy shipping trade; the outgoing whalers fitting for cruises and unloading their catches of oil and bone. Now and then, a whaler of the old type lies along the wharf after a desultory year's cruise, or quietly refits for a last few journeys in the pursuit of the whale—but no longer do the townspeople crowd the water front in welcome or farewell. No longer is the talk of the ships that sail in the morning. Pride and competition in the trim and gallant appearance of the craft has departed. The old hulks crawl out almost unnoticed, poorly manned by foreigners, begrimed and shabby, to return without acclaim, dirtier still. Gone is the romance and the allure of the olden days. The foreign trade has practically ceased. Busy cotton mills are bringing new prosperity to New Bedford. A prosperity of the few and an influx of ignorant imported labor that even today has set its tawdry finger marks upon the beautiful city.

Trade, commercial activity, and the increase in population through immigration, sweeps the business center slowly but surely upward from the water front; and quaint little houses of one hundred and fifty years ago have been remodeled into shops or razed to make room for more pretentious structures. Here and there a one-time Quaker home is left, empty and forlorn, huddled between ugly brick stores, only a tiny garden remaining of all its fields and orchards. But, gratefully, a block beyond and the shaded quiet streets



A SUBSTANTIAL OLD HOUSE IN NEW BEDFORD, TYPICAL OF THE QUIET SEVERITY
OF NEW ENGLAND ARCHITECTURE.
From the Pencil Drawing by J. M. Rosé.

show unbroken ranks of old frame houses, each with its own walled or high-fenced garden. Fine old doorways, their chief ornamentation, are found on these simple homes. Some owe their charm chiefly to their good workmanship, their plain honesty of proportion, and the flickering tree shadows that fall across them. Their well kept yards and masses of old fashioned shrubbery add not a little to their attraction. Here and there one finds a really old house, still delightfully habitable. Its massive construction, and the care lavished upon it through the generations have kept it in its present state of soundness. A little flagged path leads up to its tidy doorstep, and a clump of old box adorns each side of the tiny porch.

At every street corner, looking down the cobbled hill, one glimpses the blue stream and the masts that crowd it. Several well proportioned steeples, a glass cupola, or a captain's walk edge in among the roofs. Near the water

front stands the Custom House, like the old warehouses, several public buildings, and many of the fine churches and residences, constructed of native gneiss. It has the prevailing Colonial feeling of architecture and its self sustaining flight of inside stone stairs, built by a local mason, are declared worth while investigating. Down in this section are several old candle works and ship lofts of remarkable stone construction and beauty. The Mariner's Home on Johnny Cake Hill was once a fine private residence, when that vicinity was the fashionable quarter, but there are very few landmarks now existent to show the village of a hundred and fifty years ago.

The beautiful library of granite, once the City Hall, sands nakedly forlorn in the midst of ugly rows of stores, whirling dust, and the bare faced glare of pavements. For some almost criminal misguided reason, the city's officials have allowed the wonderful old elms crowning this chief square to be cut down. Once a beautiful park, a rest



J.M. ROSÉ
NEW-BEDFORD
- 1912 -

ALONG A SHADED STREET IN OLD NEW BEDFORD.
From the Pencil Drawing by J. M. Rosé.

spot for eyes and minds, a noontime breathing place, and now a meaningless square of unsightly roof lines, criss-crossing wires, and curbed-in grass plots, this quarter of the city wears a woeful aspect to those who knew it as it was. Here stands the new City Hall, elegantly suited to the mediocre taste of its perpetrators, and serenely out of keeping with the atmosphere of the town, as are the other public buildings of late construction.

In happy contrast to these is the historic old Court House on County Street; in the days of Queen Anne, the original highroad leading to Plymouth, along which Church's soldiers drove their Indian captives, and later, Gray's regiment of Red Coats marched unchecked to do their work of pillage and destruction. Surrounded by fine trees, back from the wide street, vine grown and dignified, its venerable brick and excellent white trim make it a true thing of beauty. The delicate proportions of its characteristically colonial cupola are exactly pleasing and surmount a facade both simple and imposing. One sees in the building a splendid example of an eminently satisfying type. Here was held the famous Borden trial of Bristol county.

In the early twenties many fine old residences were built along this pleasant road; some with their grounds extending through what is now the heart of the city to the shore. There are a few good examples of the prevailing architecture left, though the house of John Avery Parker, perhaps the finest of them all, has recently been razed. This mansion was a literal treasure house, and was treated in demolition like the veriest shanty; the great columns of porphyry, rising through the hall to a clear two stories, smashed and broken out with the rude sledge and pick of the contractor's day laborers. These pillars, the oak wainscoting, panelling and carved hand rails and spindles, were brought over from Europe in the owner's merchant ships at the time of the construction of the house. There was no one that cared, no one to halt the work of destruction and save from devastating hands the delicate fan win-

dows, the carvings, the heavy doors of mahogany, or the massive fire places. A junk dealer bought the silver door hinges and latches for a few cents. Delicate mouldings and shapely pilasters lay splintered in the plaster heaps.

New Bedford's wealth acquired in the days of whaling, slave trade, and coast-wise shipping, built these fine residences of native granite. Of this period and style is the house now occupied by Dr. Hathaway, once the home of the first mayor, Abraham Howland. Approached by a semicircular drive, and shaded by New England elms, this house is imposing and effective, its gray stone giving it a feeling of permanency and some grandeur, well suited to its style of architecture. Six huge fluted columns, with capitals of the Corinthian order support the nicely proportioned cornice. The doorway gains prominence from the spacing of the columns, and is itself, with its flanking pillars and heavy lintel, a decorous part of an harmonious whole. The use of the Greek "portico," so common on the great southern estates, is not so often seen in New England, and there is a prevailing local feeling that it is eminently unsuitable. However that may be, these few similar houses of architectural pretensions stand as the expression of the wealth and taste of the controllers of foreign trade and whaling fleets in strong contrast to the stupidly elaborate residences of more recent erection.

Mrs. Hetty Green owns two fine old houses of granite and stucco of early building, which are fast falling into dilapidation owing to neglect and oversight. In New Bedford her property is considerable, and is not remarkable for its well-kept and attractive appearance.

The Society of Friends, who formed a large part of the population, helped make the little city the power it was in the past; for the whaling industry was more to their liking than either slave trade or smuggling, and in the palmy days large fortunes were made and later lost. No longer is their quaint garb seen on the quiet streets. The Friends' Meeting House is still faithfully attended by the descendants of the founders of the sect, but the old customs have



THE OLD HOWLAND HOUSE, NEW BEDFORD, MASS.
From the Pencil Drawing by J. M. Rosé.

died out, and worldly habits are no longer a reproach and a scandal. Very few residents can remember when the Hon. John Mason Williams, whiling away tedium in his pleasant office with the help of a German flute, caused such consternation among the Quaker passersby, who hastened out of reach of the vain sound, their fingers in their virtu-

climbing streets stands the Friends' Meeting House, seeming the very epitome of dignity and peace. Though close to the sidewalk, with its grounds only separated from the street by a low board fence, it has quite the effect of entirely withdrawing from the earthly affairs of the bustling town. Its severe and sombre painted brick facade, with



THE LEAST PRETENTIOUS OF NEW BEDFORD'S OLD HOUSES HAVE A PICTURESQUE QUALITY OF THEIR OWN.

From the Pencil Drawing by J. M. Rosé.

ous ears. Even the chaises of the wealthy Friends were decorously painted a modest drab, and the tale is still told in New Bedford of John Woodman, who serenely objected to traveling in the cabin of one of the packets on account of some trifling carving on the outside of that part of the vessel.

On the corner of one of the hill-

its two simple entrances and curving iron railed stairs, mark it unmistakably as a Quakers' place of worship. The long rows of wagon sheds in the rear tell their story of faithful attendance from the surrounding countryside. Vines mantle the quiet walls, and elms cast their dripping purple shadows across the doorways. Nature does her



J. M. R. O. S. I.
FRIENDS' MEETING HOUSE
NEW BEDFORD.

best to soften the building's austerity, and rather gains by the neutral tinted background it offers to her foliage.

Some years have elapsed since a certain Quaker gentleman of none too firm a standing in the meeting, returned from a visit to Boston town, in flowered silk waistcoat, ruffles, and gold watch chain, and paraded the streets to the gentle horriification of the more saintly, twirling his walking stick, and saluting his old friends with a "Damme, sir, it's a beautiful morning!" That was the beginning of the end and soon the world crept gradually in.

Many are the charming corners in old New Bedford. The stately Quaker homes of brick or stucco, with their high walled gardens, and stable yards overhung with foliage, are delightful from every viewpoint. These square substantial homes are generally built close to the street, their comely stoops approached by a short flight of eight or ten steps leading directly from the sidewalk. Heavy vines cling to the brickwork, and creep fairly into the recesses of the windows. The wooden trim of window sash, blinds, cornices and porches is generally painted black or very dark green, and the house is surrounded by a simple iron or paling fence of the same shade. Though not nearly so beautiful in effect as white trim would be, this same dark color seems fully consistent with the modest tastes of its Quaker owners, and where it loses in elaboration it gains somewhat in sombre dignity, which the luxurious foliage does much to soften. Perhaps nothing strikes you more keenly in New Bedford, than the graceful sweeping arches of its shade trees, and the prolific growth of trailing vines over its finer houses. The whole residential section, which is by far the greater part of the little city, seems, on a sunny day, a vast flicker of light and shadow. The flaggings are overlaid with its tracery, and the humblest homes are made beautiful by the trembling lace-work cast across their weatherbeaten walls. Today these Quaker domiciles still possess the same aloofness the past century knew, and as you pass along the streets rarely do you see a sign of their human inhabitants. One fully expects,

when a door chances to open, to behold the modestly garbed figure of a Quaker maid coming sedately down the old stone steps. One wonders what histories of rebellious fun-loving youth contesting with the stern precepts of an austere religion went on within these doors, and many a half recalled legend bears its tale of protesting adolescence.

Among the other places of worship in New Bedford is found a good steeple, or some rather fine mouldings about the eaves and cornices, and occasionally a fine ensemble. In front of the granite Unitarian Church, built in 1836, is mounted on a low stone base, a heavy bronze bell of beautiful design, cracked, and green with age and exposure. It is said that this bell was originally brought from Seville, Spain, by the captain of a trading vessel, having been so commissioned by the people of Nantucket. Upon its arrival, the straight-laced congregation learning that it was one of a set of chimes that had adorned the belltower of a Franciscan monastery and had chanced to be blessed by the Pope, an extra touch which the genial Captain told with gusto, spurned the accursed thing and went unringed to their bare little church content in well-doing. The New Bedford church, less orthodox or broader minded, eagerly relieved the bewildered old salt of his erroneous purchase and enjoyed its sweet tones for many years.

The fine old water mills of the town were in working order scarcely fifty years ago, and not a few residents can remember the moss-covered overshot wheel and the fringed circular pond where the boys skated in winter. To these mills, the corn raised by the farmers was carried to be ground, and many a youngster can recall playing about the edges of the mill pool while his sack of corn meal was made ready for him. Nearly all the flax used in the village was raised by the surrounding landowners, and much of it was woven by the good house wives and made into garments and bedlinen. Open fireplaces and Franklin stoves heated the old houses, and it was not until Abraham Russell first introduced coal into the town by burning it in his own grate and

exclaiming, "Open the doors and we will warm all New Bedford," that any fuel but peat and wood was used.

The homely charm of New England is intense in this little city. The sea winds, blowing in strong and salty from Vineyard Sound, clear away all the heat and smoke. Seen from the water front, the city climbs a green hill; its roofs all broken into interesting gabled glimpses by the lines of the tree tops. No barren spot shows, no ornate gilded dome disturbs the old gray prevailing tone. The church steeples are all a part of the general scheme, and the stone warehouses and occasional cupolas make up the consistent picture. From the low Fairhaven shore across the stream comes the scent of pines and sweetness of meadows. The massive and expensive public buildings, the gift of the wealthy man who loved his home town, rise majestically and somewhat unexpectedly from the low picturesque line of little homes and dark pointed fir trees.

It must be confessed that one occasionally finds New Bedford disappointing. A little street that glanced along from the corner seems delightfully quaint, proves on closer view to be hardly as quaint as it is commonplace. Nice old porches, substantial and plain, have had dabby little bow windows built over them. Fine deep eaves have been hung with gingerbread fret work and scroil saw absurdities. Here and there, the simple lines of a sane but unpretentious dwelling have been broken by a totally useless and really atrocious circular tower. Fresh paint of an ugly color spoils one good house, and the place of another has been lately taken by a cheap stucco residence fairly shouting new "mission" furniture and "elegant electroliers."

New Bedford is not changing so swiftly as to cause real anxiety to those who love her quiet streets, and it is safe to say that another quarter century will see her much as she is now. Though the greatest losses have been sustained in the past ten years, it is possible that the feeling evoked by them may be strong enough to preserve with avidity other treasures from destroying hands. The modern spirit is crude enough in

its appreciation, and the constant clamor for progression deafens the ears of the elders pleading for the old. Youth's way is a way of change and activity, and the pressure of events leaves no time for the cultivation of the finer arts. The city must look to its men of attainment, its women of ideals, to stem the heedless tide of a growing population but lately naturalized. The children of the foreign born have several generations to progress before they will foster a veneration for their country's traditions and a protecting love for the old land marks. Education holds all this within her hands, and it is the high privilege of those who wait upon her to dispense her bounty with patient ready heart and seeing eyes. Would not the greater wisdom be, to thoroughly teach the very young the foundations of learning, the simple facts of mental processes and more than superficially the things of the heart and of the soul?



THE OLD SPANISH BELL.
From the Pencil Drawing by J. M. Rosé.



BARTON HARTSHORN MANOR HOUSE, ENGLAND.
SIR ROBERT S. LORIMER, ARCHITECT.



THATCHED STABLE WITH CASEMENT WINDOWS, POLLARD'S WOOD GRANGE, ENGLAND.
Forbes and Tate, Architects.

RETURNING TO THE CASEMENT WINDOW



BY ALWYN T. COVELL



CERTAIN details,—chimneys, roofs, windows, decide the architectural character of a building more radically than more superficial elements of "style." Perhaps these things are too important to be classed as details, for certainly one had rather see a building of no specific "style" (the bane of modern architecture) yet one which possesses strong qualities of *character* by reason of the architectural fitness of its detailed parts.

If the contention that our architecture is kept on a general plane of mediocrity through the prevalent tendency to copy, is a misleading or unfair contention, the arraignment might better be differently stated. It might be said that it is not because we copy that we often fail, but rather that we do not often enough copy good examples.

It has been rather thoroughly thrashed out that a copy or a close adaptation of a good example is greatly to be preferred to an original design which is accepted for no reason other than its originality. Originality as an end rather than a means in architectural expression rarely if ever produces sound and last-



DETAIL OF COTTAGE, EAST CLANDON, ENGLAND.
H. S. GOODHART-RENDEL, ARCHITECT.



DETAIL OF COTTAGE, EAST CLANDON, ENGLAND.
H. S. GOODHART-RENDEL, ARCHITECT.



CASEMENTS GROUPED WITH A DOOR—ENTRANCE TO THE OFFICES OF MELLOR AND MEIGS, PHILADELPHIA, PA.

Mellor and Meigs, Architects.

ing results. The great architectural expressions of the past have lived to form the solid bases of design today only because they were intrinsically good. Much that was merely "original" has perished so that not a trace of it exists.

With this in mind, with an intent to develop precedent with intelligence rather than to shun it on principle, a few salient facts begin to take shape from the architectural kaleidoscope which daily confuses the eye and mind. We perceive (with all the ardor of new discovery) that Gothic, in its several forms, is undoubtedly the best type of architecture for a church. We find that the classic orders, reverently used, are probably the best that have been evolved for public or monumental buildings. And

among these amazing discoveries of things which we have always known but often sought to evade, is the conviction that the English type of domestic architecture is the happiest type for the country house, for the very simple reason that it conveys a greater impression of domesticity than any other. Even our own early farm-house type, homely as it is, does not equal the English house (even in its own class), because the picturesque formed no part of its make-up, and because its severity was a little uncompromising.

Upon deciding that an adaptation of the English idea of country cottage, or large country manor, is the desideratum, it is interesting (and a little disheartening) to notice how very wide of the mark



DUNCHURCH LODGE, RUGBY, ENGLAND.
GILBERT FRASER, ARCHITECT.



CASEMENT WINDOWS IN SOUTH WRAXHALL MANOR HOUSE, WILTSHIRE, ENGLAND.

most of such adaptations fall. Country houses that cannot immediately be identified as American are so rare as to be countable. Perhaps Wilson Eyre has succeeded more consistently than any other architect in this country in interpreting in an American country house certain happy ideals of the English country house. Albro and Lindeberg and Grosvenor Atterbury, as well as certain of the Pennsylvania architects, have successfully grasped the idea.

The many architects whose work in country house design is mostly a hybrid compromise, have failed more disastrously in their execution than in their ideals. They have intended to build after the manner of Lutyens or Voysey or the others of the English country house architects, and have expressed this intention in the wrong dialect, or rather in the wrong application of detail. The usual Anglo-American country house is as little a success as would be a mono-

logue imitation of an Englishman rendered with a Yankee twang of speech. Without going into the deeper reasons why the American builds his house in a different manner from the Briton; without, in fact, discussing anything as basic as "The English Point of View in Architecture," it is certainly interesting, and maybe profitable, to study certain of the more superficial reasons for our recurrent failures.

Something was said at the beginning of this article about chimneys, roofs and windows.

Perhaps of these three details we have most conspicuously ignored the saliently picturesque quality of the English window. It is impossible that we have failed to observe. It seems only to remain that we have wilfully or stupidly ignored.

Few architectural features are as difficult to reconcile with English domestic architecture as the American double-

hung window, especially when it is glazed with the uncompromisingly blank expanse of a single pane of glass. The wide popularity of the double-hung window is, perhaps, due more to a correspondingly wide misconception of the casement window. The casement seems too often to have been dismissed as "picturesque but impracticable."

Many architects, it should be said, in all fairness, would use casement windows in preference to any other type if they could overcome the unfounded but often obstinate prejudices of their clients in the matter. The client's objection is equaled in its obstinacy only by the peculiar vagueness of the premises underlying it. Usually, upon cross-examination, it will be found that some one has told him not to have casement windows in the house he is going to build. Questioned further as to why, he may say that they cannot be made

weather-tight, that they are hard to clean and that they are easily forced. Here are three bristling objections—objections so potent that the vine-clad English cottage of his dreams never materializes more closely than a disappointing approximation, for the reason that he has failed to appreciate that no one feature contributes more to the charm of the English type of house than the casement window.

Look at the work of C. F. A. Voysey, of Edwin L. Lutyens or of any of the host of successful English architects, and analyze the type of house they have created. A quaint and interesting roof, an unexpected sort of chimney, perhaps, or a buttress here and there, and a picturesque texture in some local slate or tile—but above all, casement windows, singly or in groups. The small leaded panes are in scale with the shingles or bricks or stones of the wall. The natu-



AN INTERIOR IN SOUTH WRAXHALL MANOR HOUSE, WILTSHIRE, ENGLAND.
In a restoration of this old manor, modern metal casements were installed.

ral irregularity of the leading causes the panes of glass to stand at slightly varying angles with the sun—some panes brilliant by reflection and others dark. Interesting groups, windows close together, are possible for the reason that the bulky sash-weight box of two adjacent double-hung windows is eliminated. Certainly the effect is thoroughly pleasing from the picturesque point of view, and the prospective builder has quite decided that he must and will have casement windows—until someone tells him that they are a delusion and a snare. Many a man would have the house he may have dreamed of for years if it were not for the officious "advice" of his friends. And this advice is always of things to avoid and never of things to do. An architect finds it a pleasant undertaking to build a house that will please his client, but often comes to despair of pleasing twenty or so of his client's friends at the same time.

So it often fares with the casement windows that were admired in the drawings, but condemned by the inevitable and ubiquitous "friend." The client hurries back to the architect to impart to him the three dire detriments enumerated above, and the architect is rarely able to dispel the prejudice. All the houses in the same street, or in the same suburb have double-hung windows, *ergo*, there must be something wrong with casement windows. Absurd as these "reasons" may seem, they are, nevertheless, sufficiently potent to sway many prospective builders away from what they consider a very risky experiment.

That the only three possible objections to the casement window are entirely unfounded either on fact or reason seems almost too obvious to enlarge upon. To say that a casement window cannot be made weather-tight is no more or no less true than to say that a roof cannot be made weather-tight. Poor detailing and poor workmanship will expose any exterior detail to danger of deterioration, but the well detailed casement, whether of wood or of metal, is no less protection against the elements than a double-hung window.

On the score of cleaning, perhaps a

little more weight lies in the objected difficulty. This, however, can be obviated by so hinging the casements that one may be reached through the next, and by having them sufficiently narrow so that the span of the arm can reach the far side. One type of casement is so designed that its hinge throws it, when open, half within the room and half outside.

That a casement window is easily forced is the most absurd claim of the three objections enumerated, for in addition to the various latches and fastenings devised, there is the cremorne bolt, a metal rod which can be thrust by operating a central knob into metal pockets imbedded in the sill and head of the window. Where a metal casement is to be forced, the entire glass and leading must be removed before entrance could be effected.

Referring again to the grouping of casements, this point enters the ventilation question. A single casement window may be opened to the full extent of the wall opening, by throwing it wide, or may be fixed open at any lesser angle by means of a sliding bar and set-screw on the sill, now devised to operate even when the windows are equipped with fly screens. If the objection is entered that the vertical opening of the window may cause a lower cold draught in the room than the opening of a double-hung window at the top, this may be obviated by placing pivoted transom sash above each casement.

A significant feature of design in detailing rows of casement windows is the fact that the mullions separating them may be less than half the width of the mullion required between two adjacent double-hung windows with their sash-weight boxes. This narrow mullion possible with the casement adds greatly to the lightness and grace of a bay or oriel window, and affords, as well, a maximum void and minimum solid in any given glazed wall-opening.

It is not necessarily true that a casement window is always the best type, but it is to be contended that it is absolutely essential to the rendering of any house of the English domestic type and

equally essential in buildings of the eighteenth century French type.

To state that the casement is the logical window seems a little like stating that a roof is the logical covering for a house, yet the use of the casement window in this country has been limited to an amazingly small proportion of buildings. Only within the last few years has the casement window come to be regarded here and there as anything but an experiment, an affectation or an innovation. It is hard to conjecture why it has taken the architects of this country so long to accept what has been a part of European architecture for several centuries, and yet, on examination, it would prove in most cases to be the owner and not the architect who has vetoed the casement type of window. And to conjecture as to the reason for this is to revert to the three objections mentioned above, the life and existence of which is due to passing from hand to hand without investigation or serious thought.

If objection is made to the appearance of a casement window, that is one thing, but objections on this score are rarely heard, and are to be recorded only as matters of individual personal taste. An objection on the score of the practical, however, is another matter, and this (with no logical foundation on fact) is the most common type of objection. Cost is a third (and often a potent) consideration. In a building of cheap construction the casement is out of the question for the reason that double-hung windows of various stock sizes may be had from any sash and blind factory, whereas the casement must be specially detailed and specially made. In a building where cost is not the paramount consideration, however, and where appearance comes first, the casement may well be figured in, even to the greater expense of metal type. In a house of brick or stone the non-deterioration of the metal casement is worthy of estimate. Such a building, with walls of masonry, roof of slate or tile, rain-leaders, gutters and flashing of lead or copper, and metal casement windows, there is no one external feature which can suffer deterioration from the elements.



THE SMALL PANE OF THE LEADED CASEMENT GIVES AN EFFECT OF SCALE.

The Question of Heat & Ventilation

BY CHARLES L. HYBBARD, ENGINEER



THE heating of a dwelling house is commonly regarded as a simple matter, and at first thought it may hardly seem worth while to take the time for a special study of the subject. The equipment of large public buildings naturally appeals more strongly both to the architect and engineer, and often results in a tendency to turn the designing of less important work over to the heating contractor, who, in some cases, may be more interested in his profit than the successful and efficient operation of the plant.

The object of the present article is to present in simple and concise form a considerable amount of practical data relating to this particular class of work, arranged with special reference to the needs of the architect, both in laying out heating plants himself and in checking those of others.

GENERAL REQUIREMENTS.

The first requirement of any heating system is that each part of the equipment shall be properly proportioned with reference to the others, and that the entire apparatus shall have sufficient capacity to warm the building in the coldest weather. Economy of operation should also be considered, as well as ultimate capacity. For example, a certain size of furnace may be capable of warming a building, if forced sufficiently, but with a large waste of heat passing up the chimney. A larger furnace will cost more in the beginning, but will be much more economical and satisfactory in the end,

because it can be operated under normal and efficient conditions. Other requirements are simplicity, flexibility, and ample fire-box capacity. The apparatus should be simple because its care falls to those unfamiliar with mechanical devices; flexible, in order that the heat may be regulated according to outside weather conditions; and provided with a large fire-box to increase the length of time between periods of firing.

VENTILATION.

It is as important to provide suitable means for a supply of fresh air in the average dwelling house as in the largest school building or theatre, although the requirements are entirely different. In the ordinary sized room, occupied by one or two people, there will usually be sufficient ventilation from leakage, which under average conditions, will amount to at least one complete change of air per hour. This, however, can be increased by a slight opening of the windows without producing uncomfortable drafts if the room is properly warmed. It is only necessary to shift the sashes a small amount so that the air may pass between them in a thin sheet.

Some of the forms of window ventilators or deflectors which are placed beneath the lower sash are a help in this class of work, although the volume of air admitted is so small that it does not meet the requirements of rooms at all crowded. The common practice of sleeping with open windows takes care of bedroom ventilation to a large extent, while the dining room is occupied for only a short time and is filled with fresh air in the morning from leakage during the night. The room requiring special means for a positive supply of fresh

warm air is the living room, where the family sits for three or four hours at a time, and commonly with burning lamps or gas jets vitiating the atmosphere. With a properly designed furnace system the matter of ventilation is well cared for, and this can also be done in the case of steam and hot water, if the living room, and possibly the front hall, are heated by indirect surface. This should not add greatly to the expense, as a single large stack may be made to deliver warm air into both rooms. By leaving the various doors open into the hallway a good degree of ventilation may be secured throughout the entire house. Fireplaces are always efficient as ventilators, provided there are fires in them to produce an outward draft. A cold flue is of practically no value for this purpose unless there is sufficient pressure within the room to force the air through it. Down drafts of cold air are often produced by unused fireplace flues, and while this is pure, it is not delivered in a manner adapted to ventilating purposes. It should be mentioned, however, that the conditions noted are for a minimum air supply, and that these should be enlarged upon in each particular case as much as the available funds will allow.

HUMIDITY.

A proper degree of humidity adds much to the comfort and health of the occupants of a building, but is difficult to secure in the case of a dwelling house. In large buildings, employing ventilating fans, moisture may be given to the entering air by means of steam jets, fine sprays of water, and by means of air washers. None of these are practicable in the average dwelling house, and evaporation must be depended upon in cases of this kind. The water pan inside the casing of the average furnace amounts to but little on account of its small size. In a test recently reported, the evaporation produced by this means amounted to only 3 quarts of water per day, and increased the humidity of the building only 1 per cent. By placing two extra pans inside the furnace casing, thus increasing the capacity to 72 quarts, an evaporation of 20 to 24 quarts of water was obtained per 24 hours. In average

winter weather, ranging from 20 to 30 degrees, from 12 to 15 quarts of water were evaporated per day, thus maintaining a humidity of 35 to 40 per cent. Although the normal humidity for occupied rooms is 70 per cent., it is not usually practical to carry it much above 50 per cent., even if the humidifying apparatus is capable of exceeding this. With a proper degree of humidity a temperature of 62 to 64 degrees seems as warm as one of 70 to 72 degrees with a dryer atmosphere. At the present time, evaporating pans used in connection with hot air furnaces and indirect steam and hot water, seem to be the only practical means of increasing the humidity in dwelling houses.

SELECTING A SYSTEM.

The systems of heating adapted to the warming of dwellings are hot air furnaces, steam and hot water. Furnace heating is often combined with hot water, and both steam and hot water are adapted equally well to direct and indirect heating. It is proposed to take up each of these systems briefly, stating its advantages and disadvantages, and showing how the latter may be overcome under certain conditions.

HOT AIR HEATING.

This is the simplest system of heating and the least expensive to install. It furnishes fresh air for ventilation, warms up the rooms quickly in the morning, is easily regulated as to volume of heat supplied, avoids damage to the apparatus from freezing in unoccupied rooms and the flooding of floors and ceilings from leaking air valves. The chief disadvantage is the unevenness of the heat supply to different parts of the building, and the difficulty experienced in forcing the warm air into certain rooms in case of high winds. Other objections of less importance are the ease with which dust and ashes are carried through the flues from the basement to the upper part of the house, and the dry and over-heated quality of the air when the furnace is too small for its work. Unevenness of heat distribution may be largely overcome by locating the furnace so as to shorten the hot air pipes leading to

northerly rooms, especially those on the first floor. Horizontal pipes should be made of generous size, given an upward pitch when possible, and limited in length to 10 or 12 feet, except under special conditions. Overheated air may be avoided by using a furnace with generous air passages and heating surfaces, so that a comparatively large volume of air will be supplied at a moderate temperature. The method of furnishing the cold air is also an important matter, as will be described later. In general, the conditions required for successful furnace heating are more easily realized in a small house than in a large one, and for those of six to eight rooms this is probably one of the most satisfactory systems of heating, when everything is considered. Buildings of large size may also be successfully heated with hot air, but require special care in design and installation.

STEAM HEATING.

A system of steam heating is more expensive to install than a furnace, but has certain advantages, especially in houses of large size. Heat may be carried to any room regardless of its distance from the boiler or the direction and strength of the wind. The fuel may be burned under a single boiler, or battery of boilers, which results both in a higher efficiency and greater convenience, while large houses heated with hot air require more than one furnace on account of the limit to the length of the warm-air pipes. With steam, a combination of direct and indirect surface may be used, placing the former where ventilation is not required or where it is obtained in sufficient amount by leakage or through open windows. Other rooms, like living room, library, nursery, etc., which require a continuous supply of fresh warm air, should be heated by indirect surface. With a furnace, heat can only be furnished in connection with ventilation, while with direct steam the heat supply is independent of other conditions and therefore more economical to operate. The chief disadvantage of furnace heating is avoided by indirect as well as by direct steam heating, because the stacks may be placed directly at the bases of

the flues to be supplied, thus doing away with runs of horizontal pipe. There is no danger of freezing in the case of a steam system, except in sealed returns in the basement, and it is usually a simple matter to protect these sufficiently to avoid danger. The two principal disadvantages in connection with steam are the difficulty in regulating the heat supply with direct surface, and the fact that when the pressure falls in the boiler the radiators become cold. With a furnace, a certain amount of heat will be given out during the night, even with a banked or low fire, while with steam there will be no heat supplied unless there is sufficient fire to raise the pressure. Heat regulation with direct steam is commonly obtained in three ways. The best, and also most expensive, is by means of one of the pneumatic systems, which shuts off and turns on the steam automatically by means of a thermostat placed in the room. Another method makes use of a fractional or graduated hand valve in connection with one of the vapor or vacuum systems, so that the amount of steam admitted to the radiator may be varied to suit requirements.

In other systems of this general type the temperature of the house, as a whole, is varied by changing the steam pressure, carrying it considerably below that of the atmosphere in mild weather. One of the most satisfactory methods of regulating a direct steam system is to divide each radiator into two parts, in the ratio of 1 to 2, by means of a blank nipple. Each part should have its own steam connection and air valve, and becomes practically an independent unit. With this arrangement, $1/3$, $2/3$, or $3/3$ of the surface may be used, as temperature conditions may demand. This method is not expensive to install and will pay for itself in a few seasons, in the saving of fuel, to say nothing of the greater convenience and comfort obtained by its use.

By providing "vacuum" air valves, so called, upon the radiators, and taking special care to make the system of piping as nearly air tight as possible, a vapor considerably below atmospheric pressure may often be carried all night

with a low fire, thus securing much the same result as with a furnace in this respect. An objection often raised against steam heating is the noise from water hammer in pipes and radiators.

There is no excuse for any trouble of this kind with the low pressures and short runs of pipe employed in dwelling house work. A properly designed system of piping, with suitable air venting, should entirely do away with any difficulty of this kind.

Indirect radiation in the more important rooms, and special care in the decoration of direct radiators, will largely remove the objection of appearance often raised by owners and architects when considering steam heat. From the above, it would appear that for buildings of more than eight rooms, a properly designed system of steam heating would prove more satisfactory than hot air under ordinary conditions. For large apartment houses steam and hot water are the only practical means of heating, for in this case, heat for an entire block may be generated in a single boiler, or battery of boilers, under the care of a day and a night fireman.

HOT WATER HEATING.

Much that has been said in regard to steam applies also to hot water. Among the principal advantages claimed for this system of heating is its flexibility, it being possible to circulate the water at varying temperatures corresponding with the outside weather conditions. Hot water is noiseless in action, and the air in a house heated by this method often has a quality not obtained by the hotter surfaces employed in steam and furnace heating.

As the water is circulated at a temperature somewhat below that of low pressure steam the radiators and pipes must be larger, which of course adds to the cost of installation. On the other hand, the ease with which the heating capacity may be gauged to the requirements, reduces the cost of operation to such an extent that there is but little difference in the final expense of the two systems. One disadvantage with hot water in cold climates is the danger of freezing, especially in unused rooms where it is desired

to shut off the heat. This is commonly provided against by drilling a $\frac{1}{8}$ -inch hole through the valve gate so that a small amount of water will flow through the radiator, even when the valve is closed, thus taking off the chill and preventing freezing. A hot water system is slow in warming up in the morning, but will give off a mild heat during the night on a banked fire, which is a very desirable feature.

The popular idea that the air in a house heated by steam or hot water is less dry than in a furnace heated house, is a mistaken one, as passing the air over the heating surfaces of a furnace does not change the moisture which it contains one way or the other.

In conclusion, we may say that while the advantages of hot air and steam are governed somewhat by the size of the building, hot water is adapted to any size, and is commonly chosen for the particular merits noted above.

COMPUTATIONS AND DESIGN.

The first step in designing a heating plant, whatever the type, is to determine the heat loss from the different rooms. This is made up of two parts, as follows: First, that due to conduction through walls and windows, and second, that caused by the leakage of warm air around doors and windows, and through the walls themselves, to some extent.

For dwellings of ordinary construction, the following rule may be used for a minimum outside temperature of zero:

Multiply the outside wall surface by 20, the window surface by 85, add the results, and correct for special conditions by the following factors. This gives the heat loss in thermal units (T. U.) per hour:

For the very best construction.....	x 1.0
For good construction.....	x 1.1
For fair construction.....	x 1.2
For poor construction.....	x 1.3
For North exposure.....	x 1.32
For East exposure.....	x 1.12
For South exposure.....	x 1.00
For West exposure.....	x 1.20
For N. E., S. W. or total exposure..	x 1.16

For a room having a cold attic above, or unheated basement below, multiply the computed heat loss by 1.1.

Example (1). A corner room, in a building of fair construction, has an outside wall surface of 200 square feet and a glass surface of 60 square feet. The room has a cold attic above, and a North-west exposure. What will be the total heat loss in thermal units per hour, in zero weather?

Solution:

Loss through walls, $200 \times 20 = 4,000$

Loss through windows, $60 \times 85 = 5,100$

Total, 9,100 T.U.

Correcting this for leakage (fair construction), exposure, and cold attic, we have $9,100 \times 1.2 \times 1.26 \times 1.1 = 15,106$ T. U.

In computing the heat loss from an entire building for determining the size of furnace or boiler, or for checking the total radiation as proposed by a competing contractor, the method is practically the same as that described above, except the factor for exposure becomes 1.16 (total exposure). After computing the heat loss for the different rooms, and for the entire building, and tabulating the results, we have the necessary data for designing a heating system of any kind desired.

In what follows, let the symbol "H" equal the heat loss in T. U. per hour from the whole building, and "h" equal the heat loss from a single room, under the same conditions, as computed by the methods given above.

THE DESIGN OF HOT-AIR PLANTS.

The heat delivered to a room by a hot-air furnace may be considered as being made up of two parts; first, that required to warm the outside air up to the temperature of the room (70 degrees); and second, the quantity h, to offset the loss by conduction and leakage. In the best class of residence work the air is delivered to the rooms at a temperature of about 120 degrees in zero weather, under which condition, the total heat to be supplied by the furnace will be equal to $2.4 \times H$, and for any given room, $2.4 \times h$.

THE FURNACE.

The size or capacity of a furnace is commonly based on the grate area, and

this in turn, is determined by the rate of combustion and the efficiency.

Under average conditions both of these diminish with the size of grate. Table I, based on experience, gives the T.U. which we may expect to utilize from the coal burned on each square foot of grate surface per hour for furnaces of different make.

Table I.

Sq. ft of grate area (G)	T.U. utilized per sq. ft. of grate area, per hour (E)
1 and 2	24,000
3 and 4	28,000
5 and 6	32,000

To find the required grate area (G) in any given case, first compute the value of H for the building, multiply this by 2.4, and divide the result by the number (E) in column 2, corresponding to the limits of the probable area as given in column 1. If the grate area, as found, does not come within the limits expected, try the next divisor from column 2, either above or below as the case may call for.

Example (2). The total heat loss from a house in zero weather (H) is 50,000 T. U. per hour. What should be the grate area of the furnace?

Solution:

$$50,000 \times 2.4$$

$$G = \frac{50,000 \times 2.4}{28,000} = 4.3 \text{ square feet,}$$

which corresponds to a 28-inch round grate. Table II gives standard sized grates and their corresponding areas in square feet.

Table II.

Diameter of grate, in inches.	Area, in square feet.
18	1.77
20	2.18
22	2.64
24	3.14
26	3.69
28	4.27
30	4.91
32	5.58

Furnaces are of two general types, known as "direct-draft" and "indirect-draft." The principle of the direct-draft furnace is illustrated in diagram in Fig. 1. In this case the gases pass from the top of the dome or combustion

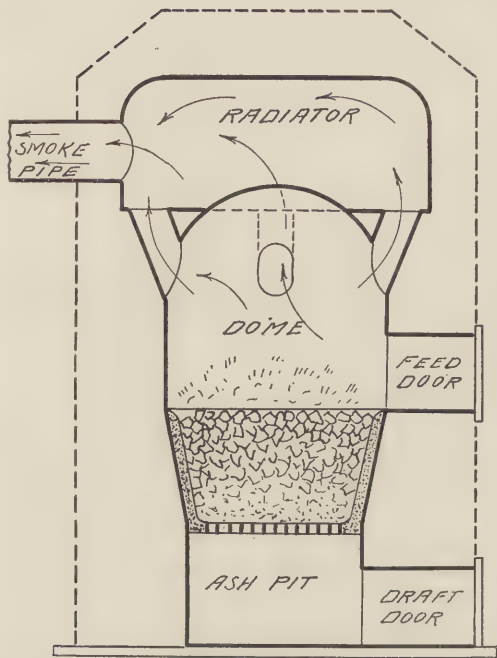


Figure 1.

chamber into the smoke pipe, by way of passages more or less direct. The best makes of this type are provided with baffles or deflectors which cause the gases to give up a considerable portion of their heat before entering the chimney. In the second type, shown in Fig. 2, the gases first pass downward to a radiator near the base and then upward through another flue to the smoke pipe. A damper is provided for giving a direct connection with the chimney, for use when coal is first put on. Either form will give good results when properly designed, but the cheaper grades are commonly of the direct-draft type, and greater care should therefore be taken when choosing one of this kind.

HOT-AIR PIPES.

The size of hot-air pipe connecting the furnace with a given room is based on the volume of air required to bring in the necessary heat to offset that lost by conduction and leakage (h). With an entering temperature of 120 degrees
h
in zero weather, this will require —
0.9
cubic feet of air per hour. Assuming

a velocity of 200 feet per minute through pipes leading to the first story, and 350 feet per minute to the second, the required area of the pipe will be
h
or h
0.9 × 60 × 200 10,800 .sq. ft. for
first floor rooms, and
h h
0.9 × 60 × 350 18,900 sq. ft. for
second floor rooms.

Example (3). The heat loss from a first floor room is 15,000 T.U. per hour, what should be the area of the hot-air pipe supplying it?

Solution:

15,000 ÷ 10,800 = 1.4 sq. ft., which corresponds to a 16-inch round pipe.

Table III gives areas of pipes of different diameters:

Table III.		
Diameter of pipe, in inches.	Area in sq. inches.	Area in sq. ft.
8	50	0.34
9	64	0.44
10	78	0.54
11	95	0.66
12	113	0.78
13	133	0.92
14	154	1.06
15	177	1.23
16	200	1.40

While round pipes give the best results, it is not always possible to provide sufficient space for them, and flat or oval pipes must be used instead.

Table IV gives the capacity of oval pipes:

Table IV.		Area, in square inches.
Dimension of pipe, in inches.		
8 oveled to 5		43
9 " " 5		51
9 " " 6		57
10 " " 5		59
10 " " 6		67
11 " " 6		75
11 " " 7		82
12 " " 6		85
12 " " 7		93
12 " " 8		101
14 " " 7		115
14 " " 8		126
16 " " 9		163
16 " " 10		177

In carrying up the hot-air flues a clear space of at least $\frac{1}{2}$ -inch should be left between them and studding, and the latter should be carefully timed. Wire lath or asbestos board should always be used instead of wooden lath for covering in flues of this kind. The best arrangement for connecting the furnace with the vertical flues, when there is sufficient space, is shown in Fig. 3.

REGISTERS.

The registers which control the supply of warm air to the rooms generally have a net area equal to about 70 per cent. of their over-all area, and this should be from 10 to 12 per cent. greater than that of the pipe connecting with it. It is common practice to use registers having the short dimension equal to the diameter of the pipe, and the long dimension about 50 per cent. greater. Table V gives standard sizes of registers for different diameters of pipe.

Table V.

Diameter of pipe, inches.	Size of register, inches.
6	6 by 10
7	7 by 10
8	8 by 10
9	9 by 14
10	10 by 14
11	11 by 16
12	12 by 16
13	14 by 20
14	14 by 22
15	15 by 22
16	16 by 24

COLD AIR SUPPLY.

The supply of an ample volume of fresh air is essential to the satisfactory operation of a hot-air furnace. Shutting the cold-air box to get more heat into the rooms is like shutting off the steam pipe between the boiler and radiators, because the medium for carrying the heat to the rooms is cut off in either case. When space is available, much better results will be obtained if a cold air chamber is provided, as shown in Fig. 4. This, for the ordinary sized house, should be about 4 feet square, and of sufficient height to include the inlet window. Its effect is to break up sudden gusts of wind and produce a more even flow of air through the various pipes. The area of the cold-air window and

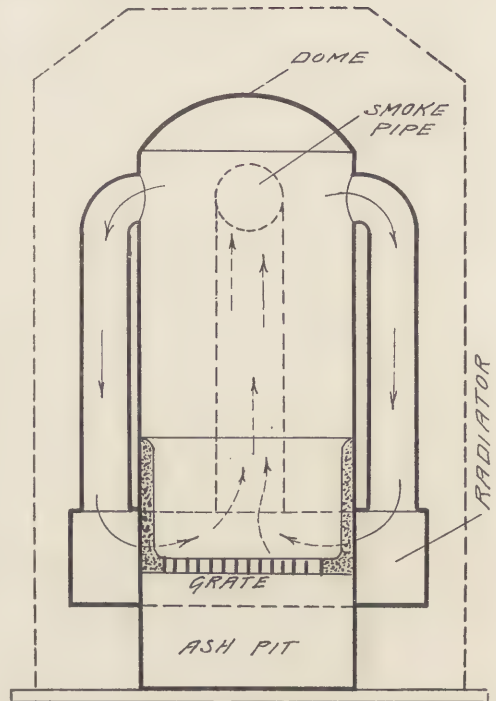


Figure 2.

duct should be at least 80 per cent. of the total area of all the hot-air pipes connecting with the furnace.

RETURN DUCT.

This is an arrangement whereby a portion, or all, of the air supplied to the furnace may be taken temporarily from inside the house. The return duct is commonly connected with a large register in the front hall and leads to the cold air chamber or duct, joining it in such a manner that the outside air cannot flow into it. This arrangement

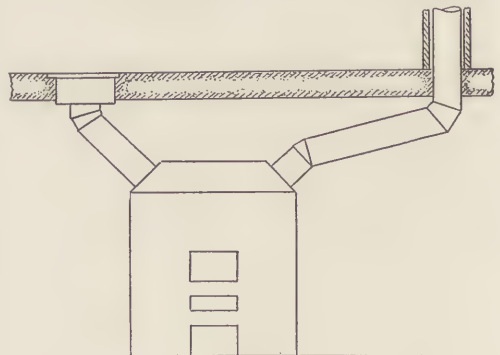


Figure 3.

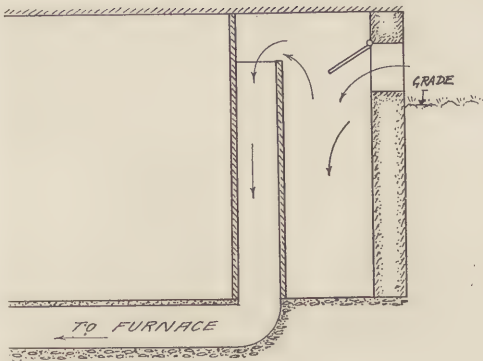


Figure 4.

is for use on cold and windy days when there is a good deal of inward leakage, and for warming up the house quickly in the morning. A switch damper should be provided for shutting off the outside air, and admitting that from the return duct by a single operation. Such a device is shown in principle in Fig. 5.

COMBINATION SYSTEMS.

When there are rooms which are difficult to reach with hot-air pipes, and where heat is of more importance than ventilation, hot-water radiators may be used in combination with a furnace. The water is heated for this purpose either by suspending coils of pipe above the fire or placing hollow cast-iron sections in the fire-pot, through which it circulates. One square foot of pipe surface suspended above the fire will supply from 20 to 25 square feet of radiation, while a square foot of cast-iron surface in contact with the fire will supply about twice that amount.

THE DESIGN OF STEAM PLANTS.

Here, as in the case of furnace heating, the first step is to compute the total heat loss from the building per hour in the coldest weather (H), and also for each room to be heated (h). The value of H may be taken as the sum of the heat losses from the different rooms, or it may be computed separately. It is often a good plan to compute it both ways as a check upon results.

BOILERS.

With house-heating boilers of the best design, the ratio of heating surface to grate area commonly varies from 15 to

25. It is customary to rate boilers of this type upon the grate area which they contain, assuming different rates of combustion for the various sizes in a manner similar to that already described for furnaces. Table VI may be used either for steam or hot-water boilers, as it is based upon the heat units to be supplied and not upon the square feet of radiation. The assumed rates of combustion are slightly different in this case than in Table I, simply because a wider range of grate areas is included.

Table VI.

Square feet of grate area (G)	T.U. utilized per sq. ft. of grate area per hour (E)
1—4	24,000
5—10	32,000
11—15	40,000
16—20	48,000

In case of direct heating, the total heat loss from the building per hour, divided by the proper value of E from column 2, will give the required grate area in square feet.

If the building is to be heated by indirect surface the conditions become practically the same as furnace heating and the computed heat loss by transmission and leakage must be multiplied by a factor to offset the heat required for ventilation, which, for the conditions of indirect steam, may be taken as 2.7.

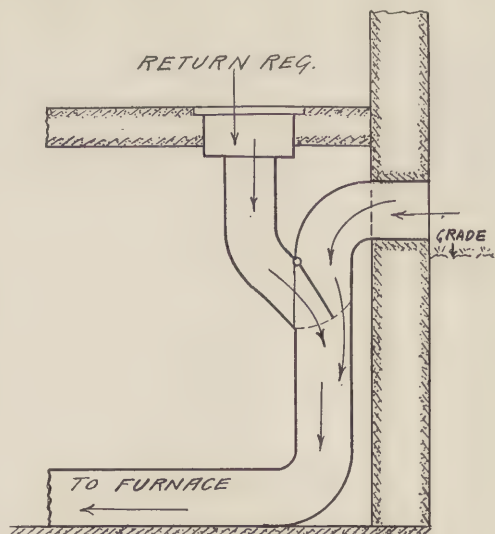


Figure 5.

When part of the rooms are heated by direct surface and part by indirect, the value of h must be computed for each room, those to be heated by indirect surface multiplied by 2.7, and the total divided by the proper value of E . Placing these rules in the form of equations, we have—

For direct surface, $G = H$

E ;

For indirect surface, $G = H \times 2.7$

E

For part direct and part indirect surface,

$$G = h + (h' \times 2.7)$$

E

in which

G = required grate area in square feet.

H = heat loss by conduction and leakage from entire building in coldest weather, in T. U. per hour.

h = total heat loss by conduction and leakage per hour from all rooms heated by direct surface.

h' = total heat loss by conduction and leakage per hour from all rooms heated by indirect surface.

E = T. U. utilized per square foot of grate area per hour from Table VI.

For indirect hot water, use the factor 3 instead of 2.7 in the equations.

Example (4): A building is to be heated by a combination of direct and indirect steam. The computed value of h is 60,000 T. U. and of h' 80,000 T. U. What should be the grate area of the boiler?

Solution:

$$G = \frac{60,000 + (80,000 \times 2.7)}{32,000}$$

= 8.6 sq. ft.

In designing a heating system for a dwelling house, the furnace or boiler should be so proportioned that fresh fuel will not have to be added oftener than once in 6 or 8 hours in the coldest weather. Assuming a combustion of 5

pounds of coal per square foot of grate per hour, or 40 pounds in 8 hours, it will require a depth of about 12 inches from the bottom of the fire door to the grate to give the necessary capacity. While the surface of the freshly fired coal may be carried 4 or 5 inches above the bottom of the door, there must be a like distance allowed at the bottom of the fire for the accumulation of ashes and cinder.

The cast-iron boilers commonly used for house heating are of two general types, those having a round grate, and the sectional boiler having a rectangular grate. The first of these is more frequently used for houses of small size, although both types have a considerable capacity range. Boilers for steam and water heating are practically the same, except the former are provided with a steam space above the water-line and are equipped with water glass and gauge cocks.

Sectional boilers are subdivided into those having steam and return drums and those in which the sections are joined directly together by nipples. When the latter type is used for steam, an outlet should be provided in every second section, in order to equalize the pressure within the boiler and maintain a stable water line. With this precaution there is no particular choice between the two types. When used for hot water a smaller number of outlets, of larger size, may be used if desired.

RADIATION.

The square feet of direct steam radiation necessary to heat a given room are found by dividing the heat loss h by 250. For indirect surface, multiply h by 2.7 and divide by 450. This is equivalent to computing the direct surface and increasing it 50 per cent., when indirect is used. Direct radiators, for the sizes commonly employed in dwelling house work, should not, in general, be over 32 inches in height, with perhaps 38 inches for the larger sizes, and two-column radiators are to be preferred to deeper ones, except in special cases, where the available space requires a different form. The location in ordinary sized rooms

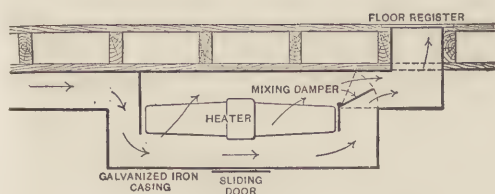


Figure 6.

should be governed largely by the desired furniture arrangement, as a radiator of the proper size should warm the room wherever placed. The matter of painting and bronzing should be under the direction of the architect rather than the steamfitter, and should be done in a manner to correspond with the general decoration of the rooms in which they are placed.

Pin radiators, 7 or 8 inches in depth, are commonly used for indirect steam heating. They are hung from the basement ceiling and enclosed in galvanized iron casings. The warm-air flues should be given a sectional area of 2 square inches for each square foot of heating surface, for first floor rooms, and $1\frac{1}{2}$

square inches for second and third floor rooms. The cold-air duct should have an area very nearly the same as the total of the warm-air ducts connecting with the stack. Regulating dampers should be provided in each cold-air inlet and mixing dampers of the general form shown in Fig. 6 in the warm-air ducts.

STEAM PIPING.

What is known as the single-pipe relief system is especially adapted for supplying the direct radiation in dwelling houses. With this system there is only one valve to manipulate in connection with each radiator, and the number of risers passing through the first floor rooms is reduced by one-half. Indirect radiators require a separate supply and return connection to secure proper drainage, on account of their construction. A diagram showing the method of running the piping for a combined direct and indirect heating system is shown in Fig. 7. When possible, the return mains should be carried below the water level of the boiler in order to seal them as this arrangement produces a much

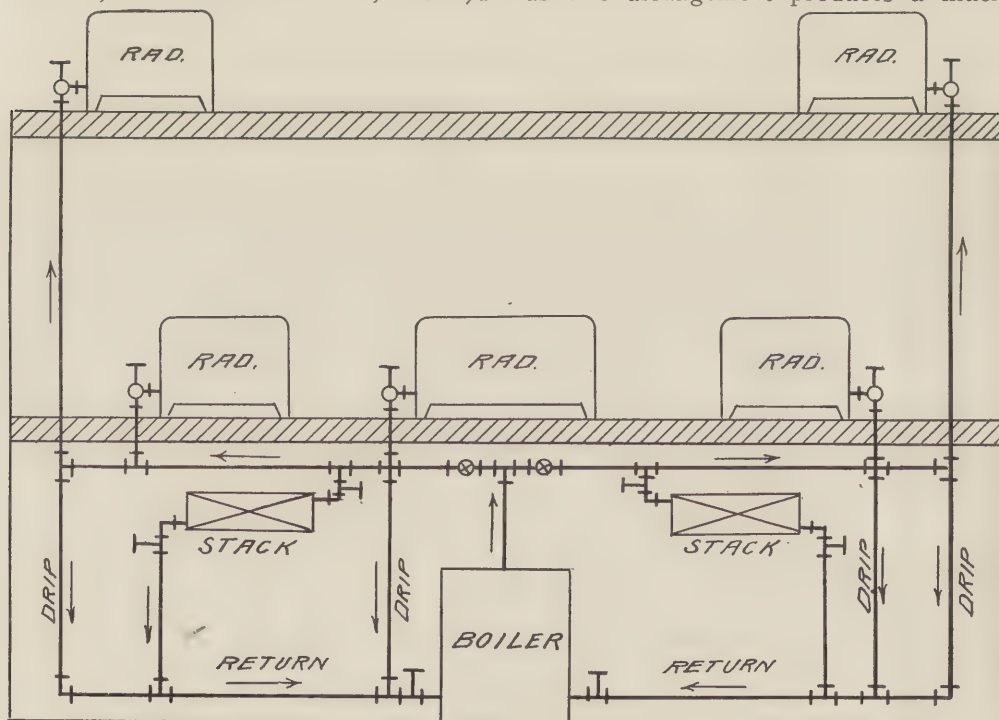


FIGURE 7.

quieter circulation and prevents water hammer.

Table VII gives sizes of supply and return pipes for the horizontal mains and branches for both direct and indirect radiation:

Square feet of radiation.	Table VII. Direct.		Indirect.	
	Steam Pipe, inches.	Return Pipe, inches.	Steam Pipe, inches.	Return Pipe, inches.
60	1	1	1¼	1
120	1¼	1	1½	1¼
150	1½	1¼	2	1½
400	2	1½	2½	1½
800	2½	1½	3	2
1,200	3	2	3½	2½
1,800	3½	2½	4	2½
2,500	4	2½	5	3

In case of the vertical risers, where the steam and condensation flow in opposite directions, it is necessary to make the pipes somewhat larger, and Table VIII may be used.

Table VIII.	
Square feet of direct radiation.	Size of riser, inches.
30	1
60	1¼
90	1½
150	2
250	2½

Care should be taken to carry up the risers in concealed positions, so far as possible, making use of hallways, closets,

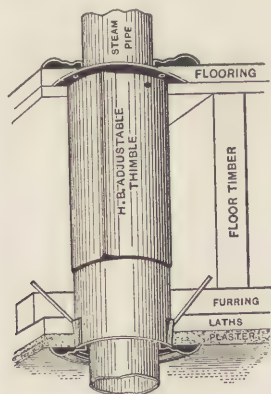


Figure 8.

and corners of rooms which are the least conspicuous. The runouts to the radiators are best concealed in the floor space which gives a much neater appearance. Where pipes pass through ceilings and partitions they should be protected with

galvanized iron sleeves having a diameter from ¾ to 1 inch greater than the pipe. The sleeve should be adjustable as to length and the ceiling plate should be attached to the sleeve and not to the pipe as is commonly done. A sleeve with plates of this kind is shown in detail in Fig. 8.

DESIGNING HOT-WATER EQUIPMENT.

The method of computing the size of boiler for hot-water heating has already been described, and therefore requires no further mention.

RADIATION.

The square feet of direct hot-water radiation required for heating a given

room are given by the expression $\frac{3h}{170}$

and the indirect surface by $\frac{3h}{340}$, which

maintains the same relation between direct and indirect surface as in the case of steam. What has already been said regarding both kinds of radiation applies equally well to water heating, the only difference in construction being to connect the tops of the sections also, in case of the direct radiators, and to provide a continuous downward passage from inlet to outlet in the indirect sections. Practically all hot-water radiation can be used for steam, but all steam radiation is not adapted to hot-water.

HOT-WATER PIPING.

A typical layout of supply and return piping for a direct hot-water system is shown in Fig. 9. In this arrangement the supply and return mains, which are of the same size, are run at the basement ceiling and the risers carried to the radiators above, as indicated.

The expansion tank is an important item in a hot-water system and should be connected in such a manner that it cannot, under any circumstances, be shut off from the rest of the piping. The method, sometimes employed, of connecting the expansion pipe with the house tank should not be allowed, it being much better to provide a special tank and keep the heating system entirely separate from the plumbing. The ex-

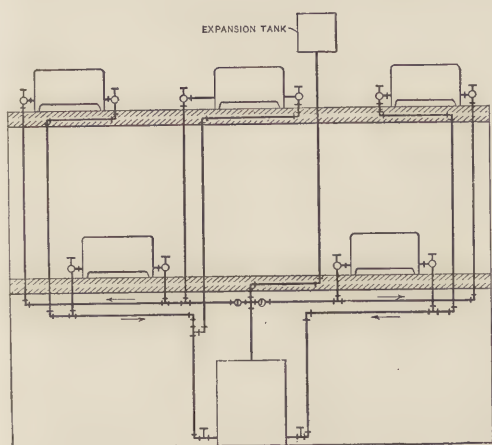


Figure 9.

pansion tank should be located where there can be no possible danger of freezing, and have connections for vent and overflow, in addition to the expansion pipe from the system (Fig. 10).

The capacity of the tank, in gallons, for any given case, may be found by dividing the square feet of radiating surface by 40.

When laying out a system of piping for hot-water heating care should be taken to favor the circulation through the first floor radiators. This is illustrated in Fig. 11, which shows a common method of making the connections where radiators on two or more floors are supplied from the same riser.

Another important matter is that of air venting. When the water in the boiler

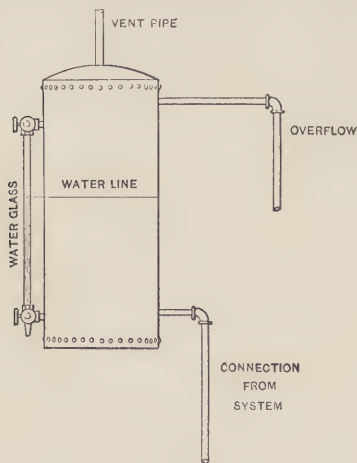


Figure 10.

er is heated, the air which it contains forms into small bubbles which rise to the highest points in the system and often accumulate in sufficient quantity to stop the circulation. In the arrangement shown in Fig. 9 the main and branches grade upward from the boiler so that the air which is not carried off by the expansion pipe finds its way into the radiators, from which it must be drawn off by means of air valves. As these, on a hot-water system, are more or less of a nuisance, they are often avoided by arranging the piping in a manner similar to that shown in Fig. 12. In this case a main riser first carries all of the water to the top of the building and the radiators are supplied on a downward feed through top connections. In this arrangement any air which is liberated in the system rises to the expansion tank and is discharged to the atmosphere through the vent.

Two methods of making the radiator

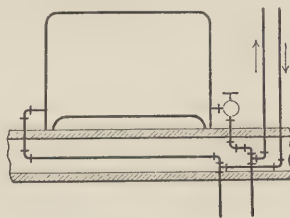


Figure 11.

connections are shown in this cut; those at the left being on the single-pipe system, and those at the right on the double-pipe system. Either of these will work satisfactorily when properly proportioned.

Pipe sizes for the lengths of run commonly found in dwelling house work are given in Table IX.

Table IX.

Direct.

Square feet of surface.	Mains and first floor risers	Second and third floor risers.	Indirect mains and connections.
30	1	$\frac{3}{4}$	$1\frac{1}{4}$
60	$1\frac{1}{4}$	1	$1\frac{1}{2}$
100	$1\frac{1}{2}$	$1\frac{1}{4}$	2
200	2	$1\frac{1}{2}$	$2\frac{1}{2}$
400	$2\frac{1}{2}$	2	3
600	3	$2\frac{1}{2}$	$3\frac{1}{2}$
900	$3\frac{1}{2}$		4
1,200	4		5
1,600	5		6

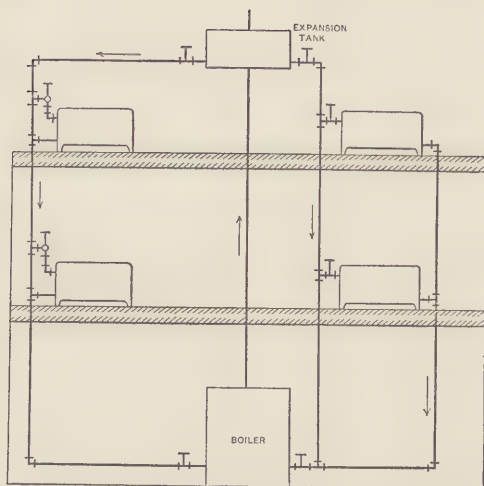


Figure 12.

GENERAL CONSIDERATIONS.

In obtaining bids for the heating of dwelling houses, uniform conditions should be insisted upon, and it is much more satisfactory in the end for the architect to prepare a fairly complete set of plans and specifications, covering the more important details of the equipment, than to allow each contractor to bid on his own layout. There may be, of course, exceptions to this in special cases, but in general, it is the fairest to all parties concerned to carry out the same scheme employed on larger work, except in simple form, and separate the engineering and contracting sides sufficiently to secure uniform bids from all parties.

When designing a system of heating, economy of operation should be considered as well as economy of installation, and this is difficult to obtain on competitive layouts. The objection is sometimes raised that contractors are not willing to guarantee results from plants not designed by themselves. As a matter of fact, the work should be so carefully planned that no guarantee will be necessary from any one. If a guarantee is insisted upon by the owner, contractors are usually willing to furnish one upon plans prepared by an architect, or at least, to state certain conditions upon which they will guarantee them.

The ordinary guarantee of sufficient capacity to heat the rooms to a temperature of 70 degrees in zero weather is rather indefinite, and a plant may fulfill this and still be far from satisfactory. Nothing is said as to the conditions of sunshine or cloudiness, strength of winds, quality of coal or frequency of firing, or whether the boiler must be forced to do its work or may be operated under normal and economical conditions. If a guarantee is to be called for, it should be sufficiently definite to have some actual value.

If competitive bids are obtained upon contractors' plans, the guarantees at least, should be uniform and complete. It seems to be the general opinion of those familiar with the matter, that all responsibility as to capacity should be assumed by those preparing the plans and specifications, and that the contractor should only be responsible for faithfully carrying these out and for the quality of his materials and workmanship.

As above stated, the usual guarantee calls for maintaining a certain inside temperature with a stated minimum outside temperature, and to this is generally added the steam pressure or water temperature to be carried in the radiators.

While the final test should always be made with the outside temperature as nearly that stated in the guarantee as possible, it often has to be carried on at one somewhat higher, and the question arises, what inside temperature should be maintained under these new conditions to indicate approximately the same capacity of plant. For cases of this kind, the following formula has been recommended by the American Society of Heating and Ventilating Engineers—

$$t = 70 + \frac{T - 70}{T} t_o \text{ in which}$$

t = inside temperature to be maintained,
 T = temperature of steam or water in radiators,
 t_o = outside temperature.

WHAT DO WE KNOW ABOUT LIGHTING

A STUDY THEORETICAL, SCIENTIFIC & PRACTICAL
By F. LAURENT GODINEZ, CONSULTING LIGHTING SPECIALIST

Photographs by August Patzig & Son

III.—ELEMENTS OF THE TECHNIQUE OF LIGHTING (Continued)

NOTE.—The purpose of this article is to illustrate certain axiomatic facts of an elementary nature bearing on light sources, distribution of light therefrom, and laws of reflection. Following these necessary preliminary studies it will be possible to direct a discriminating knowledge upon the physical and optic properties of illuminating glassware. Elementary as some points brought out here may seem, a thorough understanding of them is essential for the reason that they are involved in all questions of lighting. In addition to the exposition of more advanced and intricate principles of sources, reflection, diffusion, etc., etc., in other articles, the analytic study of specific installations will be taken up, as well as the design of fixtures, practically and esthetically considered, and should the interest of our readers warrant it, a study will be made of the lighting of specific types of buildings, such as schools, libraries, hospitals, banks, show-windows, factories, etc., etc., as well as street lighting and church and theatre lighting.—Editor.



HAVING classified lighting glassware, under two general headings, we may now consider some of the properties of various glassware, of a translucent nature, when used in the form of partially enclosing shades. We have observed the effect of ground and opal glass, as an aid or hindrance to architectural expression, when used in the form of totally enclosing balls. Several inquiries have been made regarding the density of opal, and whether opal glass of very light density still possesses the property of diffusing light through the diffusing properties.

Fig. 1 shows an opal globe of very light density, over a tungsten lamp. The difference between the retina of the eye and the camera is, of course, great—the former being most sensitive to yellow light, and the latter practically insensitive to yellows or reds. To the normal eye the globe in Fig. 1, while revealing

clearly the form of the light within, does so without the least annoyance to the eye, owing to the excellent diffusive characteristics of the glassware. Of course, opal of such light density is unsuitable, when appearance is to be considered, since the form of the lamp within is too apparent. Yet, at some distance, and with such glassware in panel format, in large lanterns, with considerable distance from the source of light to the glass—and with a frosted lamp, the effect is not so bad, and infinitely better than ground glass with its discordant and ugly spot effect. It should be noted that even light density opal, possesses the property of re-directing transmitted light, as described in our previous article, where comparisons between opal, ground, and plain glass were described, based on microscopic examination.

Fig. 2 shows the effect of surface treatment by acid etching on opal glass, of the same density as Fig. 1. Acid, or sand-blasting has the effect of bringing out the body color of glass—giving "texture" or softness of tones, which



Figure 1.

Opal globe of very light density, yet giving excellent diffusion. The lamp filament within, however, is unpleasantly apparent.

gives exquisite depth and tints to colored glass of the most ordinary type.

Fig. 3 shows the effect of frosting a carbon filament incandescent lamp.

Fig. 4 shows the effect of frosting a tungsten filament lamp. The most important change is the reduction in brilliancy from 1,000 candle power per square inch to 5 c.-p. per square inch, or a decrease in intrinsic brilliancy of 1/200, which is practically the same source brightness as the oil lamp, and a tremendous relief to the eye. Regarding the loss of light—of no importance when compared with the physiological consideration of eye comfort. The total quality of light is reduced less than 10 per cent. by frosting. The action of the acid on the surface of the glass in roughing it, was shown in our last issue, and it is evident that little or no change in direction of transmitted light is caused by the frosting. The frosting may be regarded as myriads of

tiny crystals distributed so that while they allow light to pass without greatly changing its direction, but some light rays from the filament are reflected back and forth within the bulb. The absorption of frosted glass varies, owing to the variations in dipping lamps, and various strengths of acid solutions—generally consisting of hydrofluoric acid and ammonium carbonate, but it seldom exceeds 7 per cent.

Frosting does not affect the life of a tungsten lamp, but the drop in candle power, after continued use, is more marked. In other words, the candle power of a frosted lamp is reduced to about half that of a clear lamp after 500 hours' burning. Some lamp manufacturers are to be congratulated for their policy of using frosted lamps in public exhibitions devoted to the electrical industry.



Figure 2.

Shows the effect of surface treatment by acid etching. Note that the lamp filament is entirely concealed.

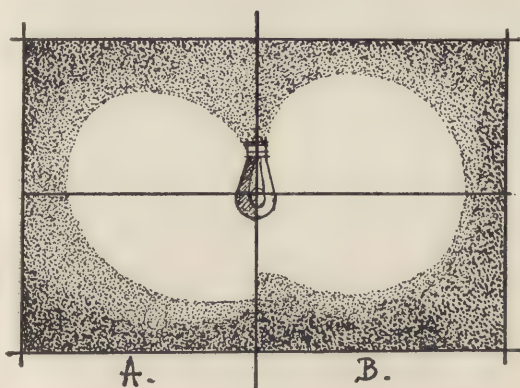


Figure 3.

- (A) Light about carbon filament lamp, frosted glass, unshaded.
 (B) Light about same lamp, clear glass, unshaded.

When a shade is used, which exposes only the tip of a lamp, the tip should always be frosted. Clear bulbs must only be used when the lamps are entirely concealed, in such applications as display window, and indirect lighting. In the latter case, a frosted lamp tip pointed skyward acts as an excellent dirt collector and cannot be readily cleaned, but with lamps hanging pendant tip, or "bowl-frosted" lamps should always be used. It is then the surface of the reflector which acts as a depository for "matter out of place" and its cleanliness depends on its freedom from mountainous ridges, with dirt inviting valleys in between. Naturally, we do not desire to restrict the surface ornamentation of shades used for commercial applications, but when such ornamentation is in bas relief it must be ornamental—not ugly and devoid of suggestion. In opal glass every manu-

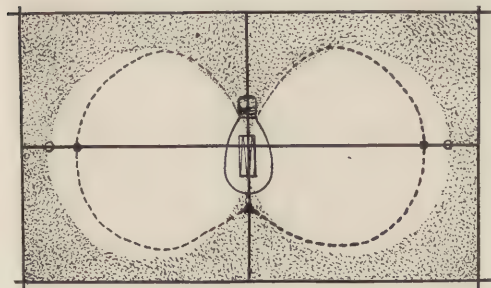


Figure 4.

The dotted line indicates the change of light distribution by frosting a tungsten lamp.

facturer has a medium lending itself readily to any surface design. A really artistic bas relief effect is more often enhanced and emphasized by a settlement of dirt, whereas an ugly surface becomes the more conspicuous. The more attractive the exterior of a shade, in harmony with its surroundings, the

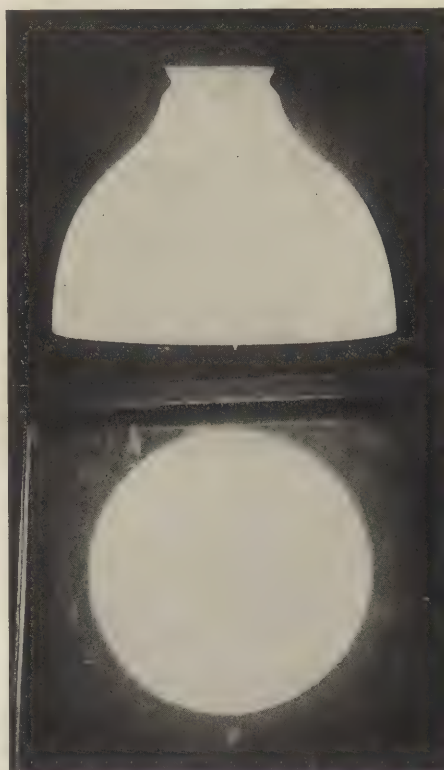


Figure 5.

Glare from polished inner surface of an opal shade.

greater necessity for making its interior as inconspicuous as possible.

Fig. 5 represents an ordinary opal shade, of light density, without surface design. Beneath is a mirror showing the inner shade surface, which is highly polished. It is impossible to look within any polished shade without experiencing intense ocular discomfort, and I have alluded to the mirror-like fidelity with which polished surfaces of furniture and papers reproduce these glaring images. Fig. 6 shows an ordinary opal shade with an original polished inner surface.



Figure 6.
Absence of glare from the depolished inner surface of an opal shade.

which has been depolished by acid etching. The soft distribution of light, so pleasing to the eye, is marked. Every glass manufacturer in the country can produce shades with depolished inner surfaces upon request. Those who have experienced the rare delight of gazing upward from the barber's chair into the glaring shade will understand. It is of interest to note whether this relief to the eye, by simply depolishing glassware, can be attained without any great loss of light. Fig. 7 shows the distribution of light from an ordinary prism shade, and the dotted line indicated the change caused by depolishing the inner surface with acid. The difference in distribution and quantity of light is comparatively insignificant, since only the ribs, or prisms on the outer surface of the glass are affected by the inner treatment, which owing to its diffusive action prevents many light rays from entering the prisms by surface redirection, and affect those which do pass through the prism by absorption of the inner surface roughing. From

a physiological viewpoint there is no comparison, the depolished inner surface being much softer and marred only by the bright lines, or streaks, which are characteristic of the prism glass. While the surface of such glassware cannot be modified to conform with architectural expression, owing to its necessary ribbed effect and lack of color, these shades can often be concealed within artistic outer forms in certain applications. They may best be used when entirely concealed within large fixtures, so that their inner reflecting surfaces may be left polished, and their distribution of light not altered by inner surface treatment, as described.

In all applications of shades one must consider the desirability of having more, or less, light transmitted *through* the shade, upwards. It is not difficult to derive useful, approximate figures showing the utilization of light above and below the horizontal, *up*, through the shade (transmitted light) and *down*, from the inner surface of the shade,—diffused or reflected light. Simply by placing a white card above, and below a shade,—equally distant from it, one can see by the intensity of light on a

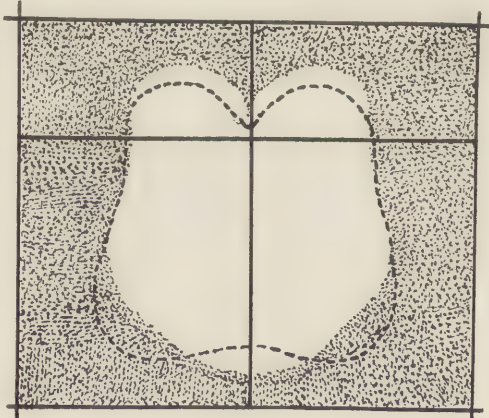
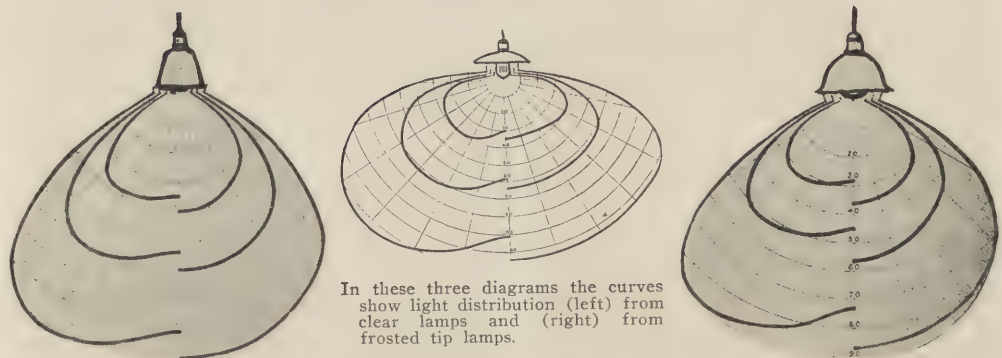


Figure 7.
The distribution of light from a prism shade. The dotted line shows the change of distribution caused by depolishing the inner surface.

card whether equal light obtains. A small card must be used, so that its surface area will not be great enough to increase the brightness of the other card by its own diffusive action,—if held parallel to it. Reverting to Fig. 7, the



(1) A narrow shade of dense opal glass, depolished.

(2) A semi-flat dense opal shade, depolished.

(3) A bell-shaped dense opal shade, depolished.

utilization of light is 34.3 per cent. above and 67.7 per cent. below the horizontal, with the clear prism shade giving the distribution shown by the white area.

With the inner surface depolished by acid treatment (area enclosed by broken line) 39.2 per cent. of light is transmitted, above the horizontal, and 60.8 per cent. diffused below. Now, for a practical application, consider for a moment Fig. 8. The glass panels of the lantern are so placed that even opal glass could not assist in giving re-direction by transmitted light, since there is not sufficient inclination of the lantern sides to give this re-direction. If the panels came to a point below the lantern, forming an inverted cone, then the slope of their sides—if formed of opal glass would give a downward direction to light transmitted (Fig. 4, p. 370, April issue). With *ground glass* panels, and one or more light sources, centrally placed within, the distribution of light would be all on the horizontal, bringing out the balcony rail, but leaving a strata of darkness on the ceiling and floor above and below. This application, however, is one of the few exceptions where ground glass can be used without its characteristic spot-like effect by placing a reflector within the upper recess of the lantern, where there is considerable space. By placing a reflector therein, with a large sized tungsten lamp, entirely within its reflecting surface, the re-direction of light by the reflector is not changed by the action of the ground glass, and the lamp itself is

so far above the ground glass panels that the spot light effect is eliminated. A circular disk of amber gelatine film, stretched between two flat iron washers, and placed directly below the lamp,—(attached to the reflector rim) gives to the tungsten lamp the necessary color modification, so desirable when rich warm tones of brown, amber and gold predominate in decoration. Since the top of this lantern, like many of its kind, is opaque, a *prism shade*, such as described in Fig. 7,—which allows considerable light to pass upwards—would be unsuitable and a wasteful use of light. An opaque *reflector*, allowing no



Figure 8.
Treatment of a lantern for modification of color distribution and pictorial effect.

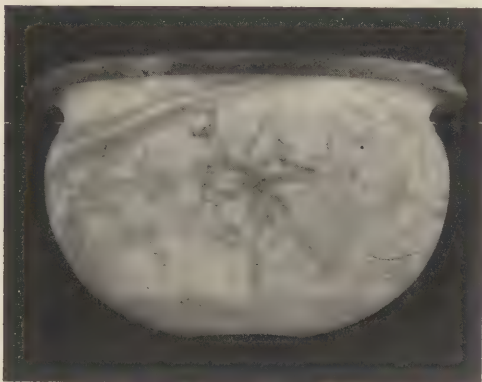


Figure 9.

Modification of lighting brings out the character of the bowl—the natural veining of the alabaster.

transmitted light above, would be more suitable, with a reflecting surface of permanent and high reflecting power (to be later described with other opaque reflectors of its kind). In this instance, when both lamp and reflecting surface are entirely concealed from view, such a polished inner reflecting surface meets both physiological and architectural requirements.

Very often other than plain glass is required in such applications. When

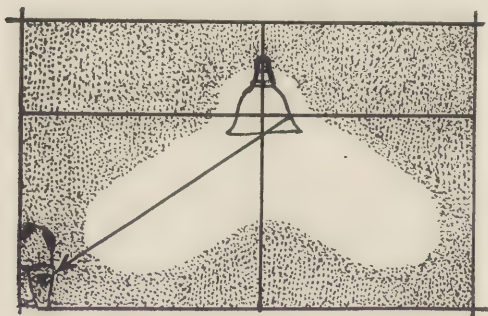


Figure 11.

Undesirable distribution with polished inner-surface shade of any kind of glass. Here the reflected light strikes the eye, but depolishing effects diffusion.

the glass used is of such beautiful nature as to possess individual appeal, the problem of placing our light source therein becomes further involved, it being often necessary to use just enough light to properly convey the pictorial value of the lantern, with due regard for the beauty of its glass. To illustrate this point Fig. 9 shows an alabaster bowl

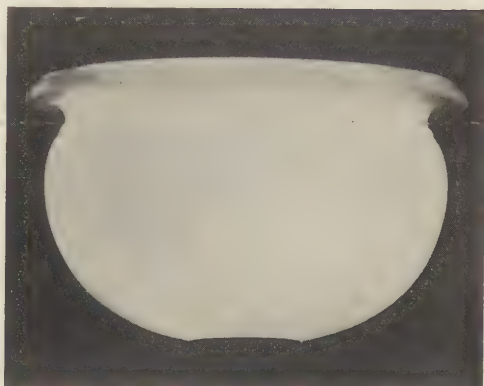


Figure 10.

The same bowl, with all its expression destroyed by over-lighting.

properly lighted to bring out its beautiful expression by a single lamp, vertically and centrally placed. Fig. 10 depicts the same bowl with its expression absolutely ruined by over lighting,—the usual senseless arrangement of a cluster of lamps prevailing. This question of lighting bowls to bring out their pictorial value, and at the same time obtaining such utilization of light and color, as is demanded by architectural expression, must be treated individually with the subject of indirect lighting, when we have finished with fundamentals.

In such a lantern as described, a reflector giving a distribution of light as shown in Fig. 11 would be suitable, and ground glass panels would not change



Figure 12.

Illustration of the natural function of the eyebrow in protecting the eye, even when, as here, the light is wrongly placed and the reader in wrong position.

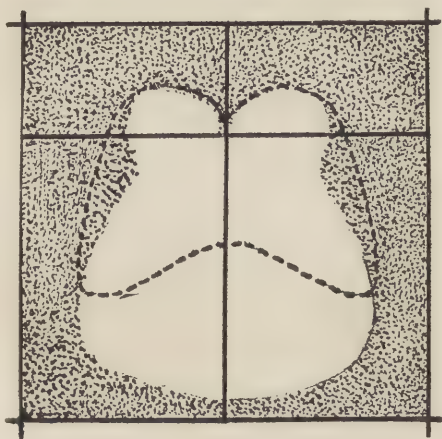


Figure 13.

Loss of light by placing lamp too low in a polished shade. A long, instead of a short, holder should be used with tungsten lamps over 40 watts.

the direction,—only modifying it by absorption. The associated diagram is intended to show how sharply reflected rays of light, at certain angles, are reflected directly into the eyes, and why shades with polished inner surfaces, shaped so as to give such wide distributions of light when exposed to view are undesirable. When a shade has more of a downward distribution, as shown in Fig. 22, page 377 (April issue), no matter where persons are seated in a room, their eyebrows intercept even direct reflected rays from concentrating, polished inner-surface reflectors. This function of the eyebrow in shading the eye is shown in Fig. 12 (Id—Fig. 6), where a person is seated in an incorrect reading position, facing the light, the protection being quite accidental.

Very often lamps are placed too low in shades, yet without projecting below them, causing unsatisfactory modifications of light. Sometimes a small lamp is placed in a shade intended for a large lamp. In this case the small lamp is so high up within the shade, that its light is either reflected back and forth aimlessly with considerable loss, or else concentrated in a spot of light, depending, respectively, on the slope of the shade's sides. For example, a light-radiating surface, or lamp filament, two inches long, within a cylinder of a dense opal glass, 8 inches deep, could not reflect

any useful light below the horizontal, since its light could only escape by transmission *through* the glass. What would happen with a cone, or umbrella shaped shade has been described on page 377, Fig. 22 (April issue). Even with lamps and shades of the right size, if the proper shade holder is not used, most unsatisfactory distributions of light will obtain. In Fig. 13 the distribution of light about a prism shade, deep enough to completely cover the light radiating surface (lamp filament) with a re-directing surface (shade interior) is shown by the white area. With over 40 watt tungsten lamps with skirted bases, deep shade holders must be used to give this correct position. The broken line shows the loss of light by using a flat shade holder, forcing the lamp in a lower position. This loss with a depolished inner shade surface would not be so marked, which is another very good reason, aside from physiological considerations, why shades with depolished inner surfaces are desirable. But with a polished inner surface, any *slight change* in position of the light radiating surface,—whether it be a gas mantle or a tungsten filament—will produce decided changes in light distribution. Hence the continued changes in position of filaments by tungsten lamp manufacturers as a result of their various improvements in lamp efficiency cause decided modifications in distribution of light, when these lamps are placed within shades with polished inner surfaces.

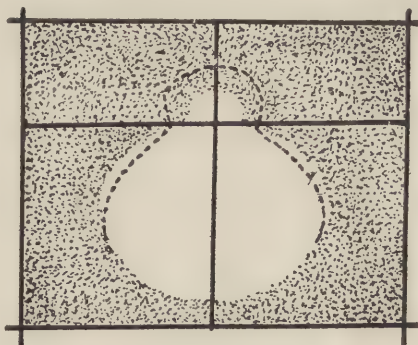


Figure 14.

Light from dense and light opal shades compared. The white area shows the light from dense opal shade; the dotted line, the light from light opal.

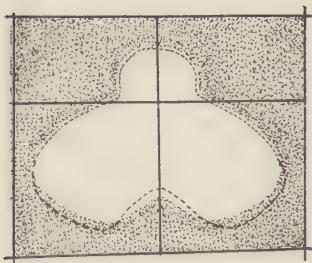


Figure 15.

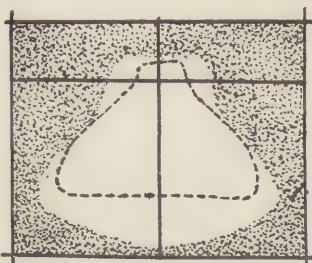


Figure 16.

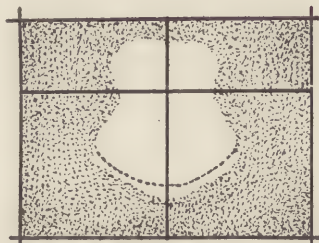


Figure 17.

Figure 15. Light from a white flaked opal glass shade with partially depolished inner surface (white area). That this rough and smooth surface gives both diffusion and reflection is proved by the dotted line, showing slight modification caused by depolishing inner surface.

Figure 16. A comparison of opal flaked glass (dotted line) and dense opal glass (white area) used in shades.

Figure 17. A comparison of cloudy flaked opal glass (white area) and plain opal glass treated on outer and inner surfaces (dotted line).

There are many opal shades available from all glass makers of standing. These are supplied in moulded (heavy thick glass) or blown (light thick glass). Both styles are usually furnished with a polished inner surface, being depolished only when so ordered. The best

dead finish is obtained by first sand-blasting the inner surface, and then applying acid to eliminate the too irregular, dirt collecting surface. This gives a soft, velvet-like texture to the glass. Naturally, a thin, blown opal glass allows a greater transmission of light

above the horizontal — through the shade. One might assume, then, that there would be less light diffused downward, below the horizontal.

In Fig. 14 the white area shows the distribution of light about a bell shaped, dense (moulded) opal inner depolished shade, over a tungsten lamp. The light transmitted above is 20 per cent.—diffused below 80 per cent. The broken line represents the distribution of light about a light (blown) opal, bell-shaped shade, of exactly the same shape as the dense, and with the same lamp in the same position, also with an inner depolished shade surface. The



FIGURE 18.

"A"—Suggestion for Gothic lantern to conform with brackets, etc.
 "B"—The incongruity and glare of the shade actually used.

transmitted light above the horizontal is 33.4 per cent. and the diffused light below 66.6 per cent. The candle power at a point directly below the lamp tip is the same for both shades. These opal shades are recognized by their amber color and over-familiar "Sheffield" design, which is becoming almost as commonplace as the ribbed, prism effect. As I have previously remarked, there is no restriction whatsoever limiting in expression and character of the treatment of shades rendered in opal glass. Any design can be cut in the mould so that it will appear on the glass in bas relief,—the added thickness of the glass giving increased absorption, and bringing out the ornamentation decisively, against a rich, warm, background. In amber this glass affords a pleasing relief from the monotonous white globes, which are often unpleasantly conspicuous, against dark backgrounds and which deprive yellows, golds and browns of all their depth and warmth. Direct the light from a tungsten lamp (unshaded) against a piece of Mission furniture, or an embroidered cloth, embellished with gold. Then place over the lamp a piece of amber gelatine film, or amber glass, and note the transformation. In light rooms, with the white backgrounds, which prevail in many commercial interiors, the white shades of opal blend quite inconspicuously with their environment. They are also moulded, or blown,—the former having in some instances flakes, or splotches, quite visi-

ble within the structure of the glass. These have recently been practically eliminated by manufacturers. One of the peculiarities of this white, dense, opal glass is that its inner surface re-directs light, both by reflection and diffusion. That is, it is partially depolished. One may observe a slight glaze in spots, on its inner surface, proving that some rays of light are reflected directly into the eye, but that this surface really gives reflection and diffusion is proven when it is depolished and compared. In Fig. 15 this very slight modification is shown. Fig. 16 shows a comparison of a dense amber opal shade (depolished) with a white opal shade as above described, using the same inverted, incandescent gas mantle with both shades. The white area shows the distribution effected by the dense (moulded) amber shade,



FIGURE 19.

The detrimental "spotty" effect of light from lanterns glazed with glass which is too translucent (see page 468).



Figure 20.

Bad lighting of buffet cabinet by tubular lamp. Woodwork should be depolished, lamps spaced further apart and concealed. Note glare from lamp on side wall fixture, also shown in Figure 18 "B."

giving a transmission of 21.2 per cent. above the horizontal, and a diffusion of 78.8 below the horizontal. The white opal (moulded) shade, with a less homogeneous suspension of suspended particles of opal within the structure of

the glass (broken line) gives a transmission of 31.3 per cent. above the horizontal and 68.7 per cent. below.

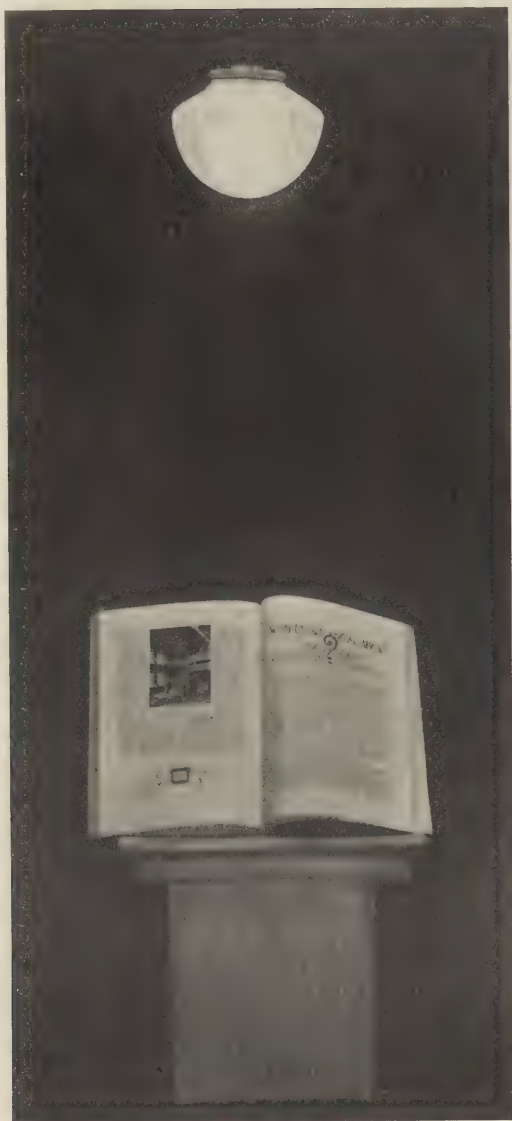
All of these shades are of about the same shape, as is indicated by the similarity in their distribution of light. Still another shade of white opal glass is different from those described in that both its inner and outer surfaces are surface treated with acid and sand. This glass is characterized by an exquisite texture and softness, being exceedingly soothing to the eye, but unfortunately its roughened inner and outer surfaces, like prism glass, readily collects dirt, which is eradicated only with painstaking labor. Therefore, as a rule, it remains dirty.

Fig. 17 shows how this glass modifies light distribution (the broken lines) showing the difference of its effect from that of the other dense white opal-moulded-glass, without surface treatment. That this double surface-treated glass gives a transmission scrupulously clean is a beautiful delusion to cherish, but, alas, a vain one. This is why "scientific" illumination, with its often absurd theoretical efficiencies, and disregard for depreciation—the effect of dirt—falling off in light with lamp life—has resulted in much dissatisfaction, the burden of which has rested heavily on the Public Utility Corporation. In commercial applications the best shade, from a purely utilitarian viewpoint, is the one which maintains a distribution



FIGURE 21.

"Spotty" lighting of mural panels—a condition to be corrected by a use of reflectors, to be described later.



Photograph showing the modification of the distribution and increase of light below by the re-directive property of opal glass.

of light below the horizontal, unaffected by the deposition of dust on its outer surface, and not dependent on a white ceiling, which may not stay white indefinitely. While all sorts of grotesque ideas have been advanced concerning the effect, or non-effect, of outer surface dirt on inner surface reflection, no one can dispute that dirt on the outer surface of a shade must greatly diminish the quantity of transmitted light toward



Photograph showing modification of distribution and loss of light below from a ground-glass globe.

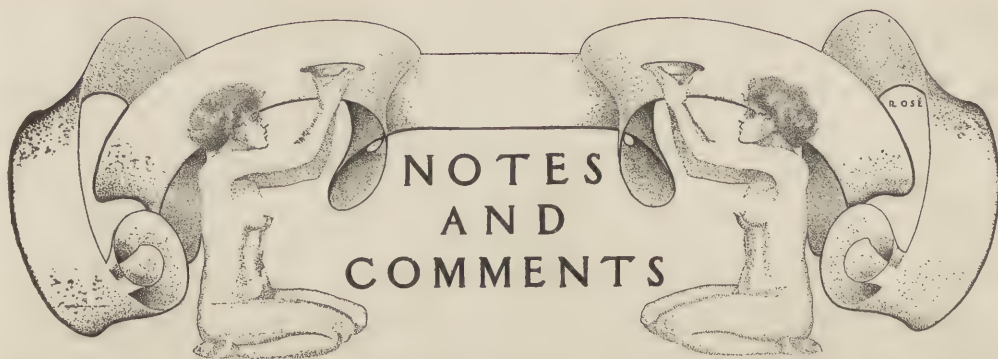
the ceiling. Again, in the many commercial applications, dirty, dingy ceilings cluttered with ugly piping, outlets, and fire nozzles, are not improved by searching light which feature them as distraction factors. As a concrete example, relating to shades and their misuse, regard Fig. 18. Here there has been an evident and otherwise well carried out intention of creating a certain architectural "atmosphere"—a flavor of

the Mediaeval Gothic style of Germany which is expressed throughout this restaurant.

This shade is absolutely incongruous with its fixture and its environment. It is of the dense white opal type described, allowing almost as much light to pass above as below, and both diffuses and reflects light from an inner surface, which is neither polished, nor depolished. The ceiling in this interesting room is a wonderful gold, which is not improved by the white light directed upon it. In restaurants, where architectural expression prevails, and the ceiling itself is of interest, do not forget that the white table tops diffuse a great amount of light upward on the ceiling, from the reflectors hanging above them. Being white they reflect somewhat the color of the incident light. This interior is rich in the period expression of the 15th century—all should be mellow, soft, and suggestive. Browns and gold predominate—a white light effect prevails which ruins the pictorial value of the room. On looking about at the interesting panelling, the paintings and other unique features of the room, the eye encounters the white splotches of light dangling miserably from the quaint old wrought-iron fixtures. Obviously a Gothic lantern in place of these commercial shades, seen everywhere, would be quite apropos. Unfortunately the selection was made of such a lantern in a glass, which, while amber in color, is too translucent and like ground glass "spotty"—this effect is shown in Fig. 19. Obviously the appearance of the fixture is greatly improved, but there are other considera-

tions. The glass in the lantern shown in Fig. 19, like ground glass, gives no re-direction of light. Hence their effect is a splash of light against the wall, destroying the pictorial value of the lantern. The solution of the problem is quite simple, a dense cylinder of opal glass of amber color is placed over the shade, as shown in Fig. 18-B, a stamped metal frame with a base, carrying out the idea of a real lantern, is dropped over the cylinder, clamped to the shade rim being suspended from the socket. A strip of gelatine amber film in the base of the lantern gives a pleasing modification of the light directed down on the table cloth, which in turn diffuse the color upwards on the ceiling and about the room. This is an instance where dense amber opal shades might be used to advantage, since only enough transmitted light is desired to give color to the lantern glass, and preserve its pictorial value, the table cloths serving admirably to bring out the gold of the ceiling, and acting in the capacity of an indirect lighting system upside down. As the function of the legitimate lighting specialist is to take conditions as he finds them, and not force the sale of glass and globes, these same shades, as illustrated in Fig. 19 will be utilized, and concealed within the lanterns. In this quaint and original old German tavern there are unlimited possibilities to use light as an artist does his brush, in giving a pleasing suggestion of atmosphere here and there. Such problems as are of exceptional interest will be presented with the regular subject matter as we progress.





Henry W. Desmond

Henry W. Desmond, formerly editor of *The Architectural Record*, and identified with affiliated publications, died at his home in Cranford, N. J., on March 18th, at the age of fifty. Mr. Desmond, before the illness which caused him to retire about four years ago, was a man of remarkable activity and versatility. In addition to his work as the editor of *The Architectural Record* from its beginning as a quarterly in 1891, he found time to edit a number of books on technical subjects, to write fiction, and to experiment extensively in chemistry, photography and processes of photo-engraving.

In New York City Mr. Desmond was a member of the National Arts, the

Century, the City and the Faculty Clubs, which represented, in a measure, his wide interests and ready social inclinations.

In an appreciation of Mr. Desmond's editorial work on *The Architectural Record*, Montgomery Schuyler writes: "In the beginning Mr. Desmond had no special competency, in aptitude or training, for the editorship of an architectural periodical. He was a man of letters, a maker of graceful verse and a vigorous prose writer. But he was a man of quick intelligence, improved by education; and he came near exemplifying Dr. Johnson's definition of genius as 'a mind of large general powers, accidentally determined to some particular direction.' In the publications under his editorial charge he set high standards.

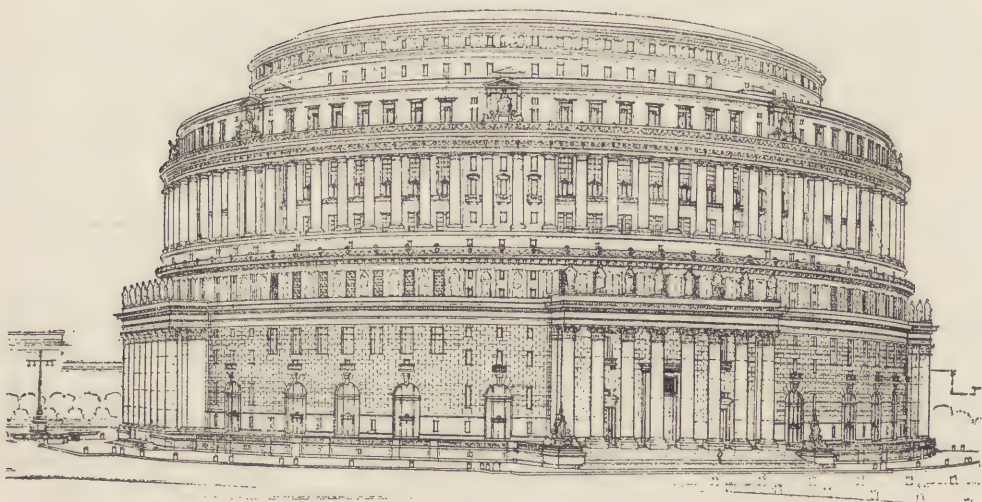


THE LATE HENRY W. DESMOND.

The Court House Award.

The award of the competition for the County Court House in New York to Guy Lowell, of Boston, is a matter of newspaper chronicle, but the design is one which must have an extraordinary architectural significance. Mr. Lowell's design is without precedent in the public or monumental buildings of this country. It presents unusual qualities of architectural classic dignity. Space does not permit detailed description of the scheme, which it is hoped opportunity will afford to treat of in detail later, but occasion is here taken to congratulate the architect, and to print the report of the Jury of Award to the Court House Board, as follows:

"Gentlemen: The jury for the competition for the selection of an architect for the Court House reports as follows in the matter of the final stage of that competition:



A PERSPECTIVE DRAWING OF THE WINNING DESIGN FOR THE NEW YORK COUNTY COURT HOUSE.

Guy Lowell, Architect.

The plans call for a building 500 feet in diameter and 200 feet in height.

"1. Pursuant to your instructions, the jury met at the offices of your board, 115 Broadway, New York, at 10 a. m. Monday, April 7, 1913.

"2. The jury has devoted to its duties the whole of four consecutive days, having held in all eight sessions.

"3. The jury found twenty-two sets of drawings hung for its inspection in the offices of your board. The arrangements were such that privacy was perfectly preserved, no one being present at any time except the jury and a single attendant.

"4. The jury at its earlier sessions examined each design with care, and it has repeatedly re-examined each design.

"5. In arriving at its decision the jury has taken into consideration the varied requirements of the programme, and in accordance with Article 10 of the programme the jury has selected the design numbered three (3) as the most meritorious, and hereby so designates it.

"6. This design fulfills to an unusual degree the exacting conditions of the programme. It presents an exterior of high dignity and interest. It gives evidence of great architectural ability on the part of its author. It promises a public monument in every way worthy of the City of New York.

Respectfully submitted,

"ROBERT S. PEABODY,

"FRANK MILES DAY,

"JOHN LAWRENCE MAURAN."

This verdict was accepted unanimously by the board. Mr. Lowell said yesterday that he thought the building could be erected within two years of the completion of the foundations. The cost of the building is likely to be \$10,000,000, and of the site, \$6,000,000.

Note should be made in passing of one stupid newspaper article whose author is evidently in amazing ignorance of the aims and standing of the American Institute of Architects. The headlines of the article in question, from a Brooklyn paper, are interesting: "Architects' Trust Forces Big Fees; Guy Lowell to Receive \$600,000 for New Court House in Manhattan; Cheaper in Brooklyn, etc." Certainly it is to be hoped, for the cause of architecture, that it may not become customary for municipalities to "shop around" for plans of proposed civic improvements. It is obvious that they can secure architectural services at less than the six per cent. stipulated by the American Institute, but the Institute schedule is based on a very simple hypothesis, and is designed to insure the maintenance of only a high standard of work among its members—an architect cannot, from the exacting nature of his work, achieve the best results on a smaller commission. He earns six per cent., and in many cases may be said to earn much more. Nothing can be more stupid or wide of the mark than to attempt by state-

ments or insinuation to liken the American Institute of Architects to a "trust" or to imply that its members exercise their membership for "restraint of trade." Architecture is a profession—not a trade, which alone must explode the "trust" simile, and the aims of the Institute are centered only in the furtherance of higher aims and ideals for architecture in this country.

The Fifth City Planning Conference.

The Fifth National Conference on City Planning will be held in Chicago on Monday, Tuesday and Wednesday, May 5th to 7th. Members and guests

will convene for luncheon at the Hotel La Salle at 12:30, spending the afternoon in a motor tour of the city. In the evening Frederick Law Olmstead will speak on "A City Planning Program," taking up (1) the development of a city planning movement, (2) the principal steps in the preparation of a city plan, and (3) methods of putting a city plan into execution. The conference will include a number of other interesting and valuable lectures and reports, including "German Methods of Paying for Improvements Out of Excess Land Purchases," by Dr. Werner Hegeman, of Berlin. The conference is indicative of the growing attention being given in this country to civic projects in terms of practical execution.

School Hygiene.

There is now being arranged at Buffalo a comprehensive program of papers and discussions covering the entire field of school hygiene. There will be scientific exhibits, representing the best that is being done in school hygiene, as well as commercial exhibits of practical and educational value to school people. Nor will the entertainment of the delegates be a minor feature, for plans are being made for a series of social events, including receptions and a grand ball, a pageant in the park, and excursion trips to the great industrial plants at Buffalo, as well as to Niagara Falls and the Rapids. Buffalo has just taken up a collection of \$40,000 for the purpose of covering the expense of the Congress.

Delegates will attend from all the leading nations, from every college and university of note in this country, and from various other educational, scientific, medical and hygienic institutions and organizations. The

Congress is further open to all persons interested in school hygiene. Membership may be secured on the payment of a five-dollar fee. Applications should be sent to Dr. Thomas A. Storey, College of the City of New York, New York City.

The man of to-morrow depends upon the child of to-day, and the child of to-day, roughly speaking, spends half his waking hours under the influence of school conditions. Those who are interested in making those conditions what they ought to be will undoubtedly find much to interest them in this convention, which will be held in Buffalo from August 25th to 30th, inclusive.

News from Australia.

Rather curiously there came, almost coincidentally, to the United States last month the tidings that the new capital of the commonwealth of Australia had been christened Canberra, after long discussion; that the foundation stone of the capitol building had been laid with imposing ceremonies; and that the premiated design for the city, which was made by the young American architect, Walter Burley Griffin of Chicago, had been abandoned in favor of a sort of compromise plan worked out by a local Departmental Board. It is explained that the Board studied the various prize winning designs on the contemplated site of the city, and finding itself unable to recommend the adoption of any one of these designs, resolved, as an official statement naively expresses it, "to approve of the plan for the lay-out of the city as prepared by itself." This plan, the statement frankly admits, is made up of suggestions from many plans. Such an outcome, it may well be imagined, has infuriated our English cousins, whose patience had already been severely tried by the failure of the High Commissioners of Australia to amend the terms of the competition, and then by the capture of the prize by an American. The Town Planning Review editorially describes the now adopted design as "entirely outside the pale of serious criticism," and says that the perspective sketch which accompanies the plan is a reminder "of a third rate Luna Park." A study of the detail of the plan shows that this criticism is hardly too severe, but there is some gratification for America in noting that it has led to a better and fairer appreciation of Mr. Griffin's work by the sorrowful architects over the sea.

Report of Art Commission.

The Report of the Art Commission of the City of New York for the year 1911 has come from the printers in its usual attractive form. The number of matters submitted to the Commission during the year was 207—the largest number it has ever been called upon to consider in a year. Of the submissions, 174 were approved; 21 were disapproved, in whole or in part—a much smaller proportion than usual; and 3 were withdrawn, leaving only 9 unacted upon at the close of the year. The total amount of money involved in the matters submitted approximated \$25,500,000.

The statistical report is as usual followed by a monograph suggested by the work and experience of the commission. The subjects discussed in the current report are tablets, ready made monuments and layouts. The Commission notes that tablets are frequently used as memorials because they may be inexpensive. It makes the comment that "while contrasted with other forms of monuments the tablet is inexpensive, nevertheless, a beautiful tablet cannot be cheap and in many cases the donors seem to fail to appreciate that it requires great skill and ability to design a beautiful tablet, and that adequate skill and ability must be paid for." The Commission opposes, also, the too familiar custom of bringing from a distance a large boulder and placing it in the midst of a green lawn and setting a tablet in it. "Tablets erected upon rocks and boulders," it says, "soon become merely black spots upon light surfaces. A beautiful inscription carved in the boulder or granite itself, or a granite or marble slab set into the rock, usually would be far more suitable." In short, the Commission urges that tablets should be looked upon not merely as records, but also as works of art. With reference to monuments, it protests against the practice of submitting to it completed monuments which have been designed at a distance without particular reference to the exact site which they are to occupy. Under the heading of Layouts, it enunciates the principle that where it has given its approval of plans for a group of buildings, it cannot approve of a design, however meritorious, for a single structure or for an addition to an existing structure, which would render impossible the execution of the group plan, unless a new group plan be also submitted and approved.

To Limit Building Heights.

An act has been drafted in Pennsylvania "to empower cities to create from one to four districts within their limits and to regulate the heights of buildings to be thereafter constructed within each district." The act is thus based on the principle which was upheld by the Supreme Court of the United States in the Boston case of *Welch vs. Swasey*. The preamble of the act states that it is designed "to protect the health of the citizens . . . and to promote the safety of public and private property." A maximum height limit of 250 feet is named in the act, but a lower limit may be placed, and the act explicitly declares that "in prescribing the regulations for any district, the city may fix either an absolute limit of height for the whole or a part of a building based upon the width of the street or streets upon which it abuts, or it may adopt some other system, and the city may provide for one system in one or more districts and a different system in others, but the system prescribed by any district must be uniformly applied throughout that district. The said regulations may further provide for a greater elevation of buildings which recede a certain distance from the building line of the street." Regulations may also apply to the alteration of buildings as well as to new buildings.

In discussing this subject, D. Knickerbacker Boyd, writing to the Philadelphia Public Ledger, proposes that "any owner who contemplates erecting on any given street a building which by its very size and nature will attract more people and more business to that particular portion of the street than it can reasonably be expected to accommodate, or worse still, than it actually will accommodate, should be made to furnish a somewhat adequate amount of space, or rendezvous, in front of it." He therefore suggests that the height of buildings erected on the present regularly established building line be limited to one and one-quarter times the width of the street or open space upon which the structure faces. This would give on a street 50 feet wide a 62½-foot high building (if erected at the usual building line), which would be equivalent to a six-story building used for residential or office purposes or a five-story light manufacturing establishment. Any building taller than this initial height should then, he thinks, be so set back that the cornice or top of its perpendicular

face shall not extend above an imaginary line, which might be called the "building and height line." If this imaginary diagonal be drawn from the curb of any of these streets, assuming the sidewalk to be one-quarter the width of the street, to the top of any building which is the limit of height above mentioned at the normal building line, and continued into space, it becomes the line of restriction. Thus to go up one must go back. This scheme, therefore, forces the entire perpendicular face of the building back from the curb in a fixed proportion to each additional story the building may go up, which can be roughly figured upon as a two-foot increase in the width of the sidewalk for each ten-foot story above the initial height.

There is this to be said for Mr. Boyd's scheme, as compared with the idea of permitting above a given height only tower construction which shall use but a small part of the floor area, that the unused ground area is now placed where it is of public value.

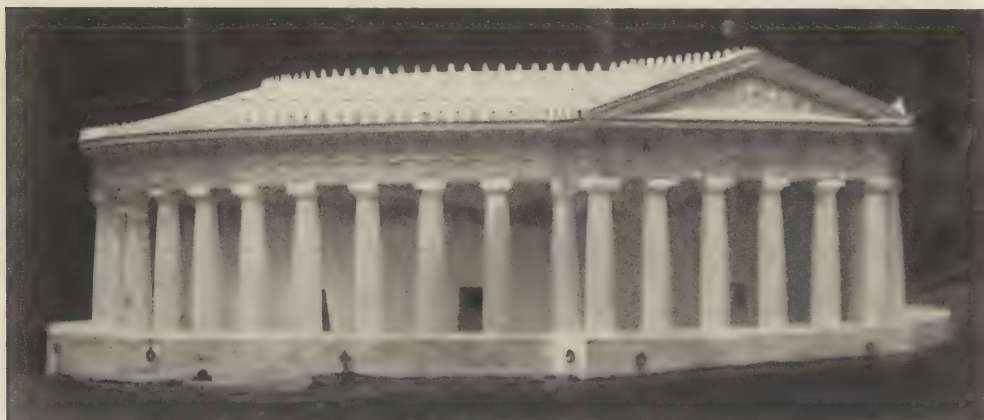
Prize Winning Designs

The awards in the competition conducted by the City Club of Chicago for the layout of a quarter section of land as a residential subdivision were announced on March 17th, at a dinner held at the City Club. The first prize, which was \$300, went to Wilhelm Bernhard, architect, of Chicago; the second prize of \$200 to Arthur C. Comey, landscape architect, Cambridge, Mass., and the third prize, \$100, to Albert Lilienberg, chief of the Town Planning Commission of Gothenberg, Sweden, Mrs. Ingrid L. Lilienberg collaborating. The widespread interest which this competition aroused, as indicated by the awards, is significant. As the awards show, this interest spread far professionally, and far geographically, and certainly the amount of the prize cannot be held responsible for it. All the competitive plans are now on exhibition at the City Club in Chicago where they will remain until June 15th. In the meantime, a long series of luncheons, dinners, and evening meetings has been arranged for the discussion of housing policy. The prize winning designs are all interesting, and it is stated that the vote of the jury was unanimous in each case. The plan which won the first prize is the most informal of the three, and makes a special feature of reservations in the interior of blocks. Both the prize win-

ning designs submitted by Americans show some curving lines. On the plan which won the third prize, and which comes from Sweden, all the streets are straight, though there are many angles, one feature being an octagon within the square. In each of the prize winning designs the standardization of streets has been carefully avoided.

An Important Decision

Of exceptional interest to architects and city planners was a decision handed down in March by Judge Sulzberger of the Common Pleas Court of Philadelphia. The question was whether the excess condemnation act of 1907, which authorizes Pennsylvania cities to acquire property within 200 feet of parks, parkways and playgrounds in order to re-sell with restrictions, was constitutional. The decision held squarely that it was constitutional. Andrew Wright Crawford, assistant city solicitor of Philadelphia, and the man who drew the act, writes that "the decision establishes a precedent that will be noted throughout the country, especially because of its effect on city planning so far as it concerns the reconstruction of the central areas of cities. During the last ten years there has been no decision of as much importance to the physical city. Even the case of *Welsh vs. Swasey*, which holds that cities may adopt different height regulations in different districts after proper legislation by the State legislature, and thus points the way to the adoption of the German zoning system, is not so far reaching." It is stated that an appeal will be taken to the Supreme Court of the State, but Judge Sulzberger's analysis of the purpose and meaning of the parkway undertaking has put great courage into the hearts of the friends of the act. In one place in his decision, he says, referring to a previous act, sustained by the courts, for the encouragement and assistance of companies organized to promote expositions: "If the Parkway from the City Hall to Fairmount Park may be made to exhibit the best results of architectural skill and of industrial achievement in the building art, it would seem to be an exposition quite as useful as if it were devoted to the arts of agriculture and horticulture. The utilitarian feature that the avenue will attract strangers from abroad, and thus benefit the city's general trade and commerce, detracts nothing from the educative quality."



PHOTOGRAPH OF THE MODEL FOR THE FLOATING CIVIC THEATRE.

Robert Paine, Engineer.

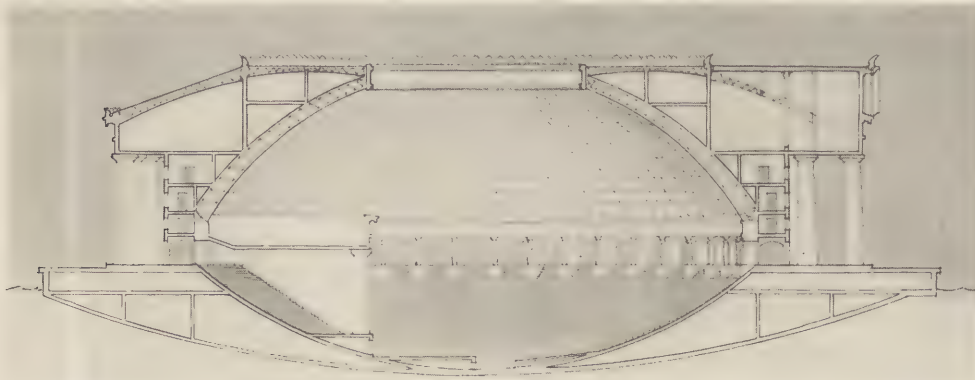
A Novel Project

A plan for a Civic Arts Building illustrated by a sketch model at the recent exhibition of the Architectural League, more than answers the question of a site for this much needed institution. Sites in the parks for buildings to serve some part of this urgent requirement have been asked for and refused. Meanwhile the art societies and patrons of art have considered various sites, but the cost has been prohibitive. This latest plan provides its own site at no cost whatever. While before this space barely sufficient for exhibition galleries has been thought of, this plan not only provides abundantly for exhibitions and schools, but the largest feature and central idea is a great civic theatre for dramatic and musical entertainment on the largest desirable scale. It would also provide a forum for the dis-

cussion of public art and other civic matters.

This building which fills these multifold needs does so by being constructed upon a bouyant concrete foundation which could be moved on one of the city's park water fronts—the Battery Park being the first suggestion.

The sketch shows a severely classical building of large scale, circular in form with a peristyle broken by a six column portico at the principal entrance. This facade stands upon a broad terrace-like platform, broad enough outside the colonnade, it has been suggested, for a foot race course for athletes. This platform arises vertically from the water line where it is found to be the continuation of a great spherical, though comparatively shallow, bowl of heavy reinforced concrete. Continuous with the inner edge of the annular platform, inside the colonnade and circular wall of the building, is a second or inner



A SECTION OF THE FLOATING CIVIC THEATRE (Section Through Stage).

Robert Paine, Engineer.

bowl of smaller radius, down the sloping sides of which are ledges in tiers to receive the seats of the theatre. The outer and inner bowl of the foundation are built integrally in the lower and central part and are also joined by a series of radiating walls which divide the intervening space into as many compartments. This construction is seen in the accompanying cut.

From the inner edge of the platform around this bowl spring a series of dome girders, one over each radiating wall in the foundation. These girders, with the circular wall and colonnade, carry the upper building, which affords a vast extent of well lighted gallery space. The contour of the dome as well as the scale of the whole plan will be made to conform to the calculations for acoustics.

It is proposed to divide the space of the bowl into a larger and a smaller theatre, it being possible upon occasion to make the latter auxiliary to the stage of the former. This stage is a compromise between the modern stage and the stage of the antique Greek theatre, which the general design suggests. The style of architecture is so well adapted to the foundation plan that it renders the whole peculiarly satisfying. In the greatest works of the greatest ages it is doubtful if the architect and engineer were so widely separated as is proverbial in this age of extreme specialization. It is too seldom that both are united in one man as is true in this case—Mr. Robert Paine being both the inventor of the foundation and the designer of the building.

To build a theatre of artificial stone, resting upon the water instead of cutting it from solid rock as in classical times is a thoroughly modern conception; to unite



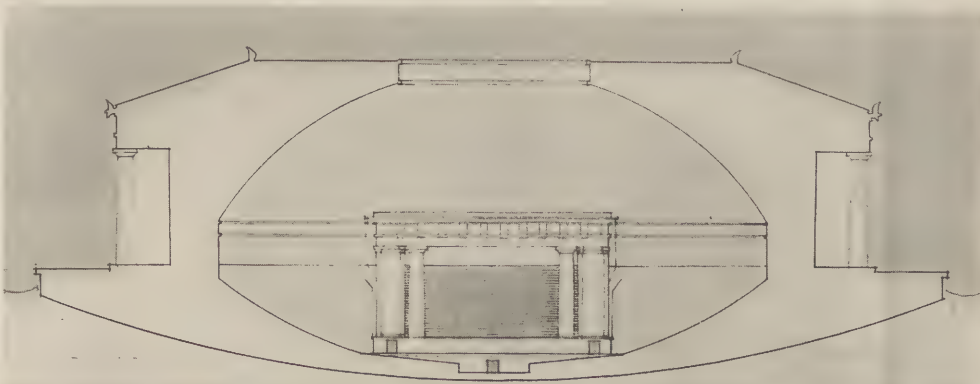
A PHOTOGRAPH OF THE MODEL FOR THE FLOATING CIVIC THEATRE.

Robert Paine, Engineer.

on this advantageous ground plan a design to satisfy a manifold civic need is an architectural conception in the broadest sense.

A Valuable Report.

One of the most valuable additions which has been lately made to the American city planning library is the recently issued annual report of the Director of Public Works and of the Chief of the Bureau of Surveys in Philadelphia for the year of 1911. Though appearing about a year late, its interest from a city planning standpoint is of a permanent character which does not suffer from the delay. For in this report there are produced all, or certainly almost all, of the maps and plans which gave such unusual distinction and interest to the exhibit of Philadelphia itself at the national City Planning Exhibition held in that city in June of 1911. Furthermore, these maps and plans are supplemented by descriptive text. Thus the student of city planning has in this paper-bound official document, issued in the ordinary course of administrative



A SECTION OF THE FLOATING CIVIC THEATRE (Section Toward Stage).

Robert Paine, Engineer.

routine, a concrete discussion by practical men which possesses exceptional value. Six large maps are devoted to the street system, ten maps and plans to parks, squares and traffic places; two to river front improvement, three to steam railroads, seven plates to the new parkway, while a number of others illustrate miscellaneous undertakings.

Architecture for Delhi.

Very lively is the controversy, both in and out of professional circles, over the style of architecture to be used in designing the principal public buildings of the new capital of India at Delhi. At a session of the Imperial Legislative Council last year, Lord Hardinge announced that he believed that the prevailing architectural style of the new city should be an adaptation to modern needs of one of the several Indian styles. In this attitude it is said that Lord Crewe supported him, as did many other friends of India whose sensibilities have been aggrieved by the inappropriate, and often ugly, Renaissance and Gothic monstrosities which the department of public works in India has erected. On the other hand, there are many, of whom it appears Lord Curzon is a leader, who maintain that the spirit of the new capital should be as English as the rule it typifies. It seems that a like difference of opinion exists between the two advisory architects sent out from England—Mr. Luytens and Mr. Lanchester, the sympathy of the latter being with the advocates of an adaptation of local designs. The English "Town Planning Review," jumping into the melee, editorially calls attention to the following points: 1, "The so-called new capital city of Delhi cannot, after all, be anything more than a European section of an Eastern town of the same name. 2, To make this European settlement really typical of modern civilization, the style of architecture will have to be something much less vernacular than the work of Inigo Jones and Wren. We must remember that Palladio's material was stucco translated by Wren into stone, and that where marble is possible we must look for a more refined inspiration, and cannot help but refer to its use by the Greeks. A third point which must be remembered is that in modern India there is a great wealth of native talent which should not be entirely ignored." It then adds this opinion: "We can conceive

of an absolutely modern building inspired by the rich delicacy of Hellenistic Greece, which would naturally assimilate much of the gorgeous decoration of the East. The Palais de Justice at Brussels, though modern and European in every essential, is certainly based on an Oriental, if not Indian, inspiration."

A Farm House Competition.

A model design for a farm house is the interesting subject of a competition which has been held this winter under the auspices of the Minnesota State Art Society. It was required that the farm house designed should cost not more than \$3,500, and that the winning designs should become the property of the Society with the understanding that they would be placed at the service of such farmers or others as might care to use them. Cash prizes amounting to \$500, and a medal and a diploma were offered. The judges are an architect, a contractor and a farmer. The competition has had the backing of the State Agricultural College, and it is proposed to construct on the College grounds a farm house which will illustrate the premiated design, while its interior decorations and furnishings are to be planned and executed by the college students. Girls students from the college will hereafter occupy the house in groups of three or four at a time during the scholastic year. Undoubtedly under these conditions the competition will result in the performance of excellent missionary work. Undoubtedly there will be received many practical suggestions making inexpensive additions to the convenience and comfort of the usual type of farm house, and perhaps even offering economies that will offset the expense of better design or decoration or unusual comfort. At the same time it is to be remembered with some misgiving that the normal farm house, however considerable is its obvious shortcomings, tends to conform to a general type which so varies in different localities that, given a farm house, one can usually tell the section of the country in which it is located. This circumstance gives to its design, for all its faults, a significance and dignity that makes one a little fearful with regard to the general adoption over a large area of a design made on a city draughting table by a man who is working for a prize.

THE ARCHITECTURAL RECORD



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L'ARCHITECTURE

B. Avdon Jr.

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PUBLISHED MONTHLY BY

THE ARCHITECTURAL RECORD COMPANY

115-119 WEST FORTIETH STREET, NEW YORK

F. W. DODGE, President

F. T. MILLER, Sec. and Treas.

Contributing Editors

MONTGOMERY SCHUYLER

C. MATLACK PRICE

HERBERT D. CROLY

Yearly Subscription—United States \$3.00
—Foreign \$4.00—Single Copies 25 Cents

Entered May 22, 1902, as Second
Class Matter at New York, N. Y.

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The North Portal, - Baltimore.

THE ARCHITECTURAL RECORD

JUNE, 1913

VOLUME XXXIII



NUMBER VI



THE CATHEDRAL OF THE INCARNATION

BALTIMORE, MARYLAND

CRAM, GOODHUE & FERGUSON, ARCHITECTS~
NOTES ON THE PRELIMINARY DRAWINGS & STUDIES



HE site chosen for the Cathedral of the Incarnation in Baltimore, and its subsidiary buildings is one which, from its very nature, makes possible not only a strikingly majestic and effective composition, but also inevitably necessitates

a careful adaptation of the building to the given conditions. This is singularly fortunate, and an effort has been made in the plans drawn by the firm of Cram, Goodhue and Ferguson, so to conceive the future growth as to take advantage of all the offered possibilities and to make them, in a sense, one of the controlling elements in the development of the design.

As will be immediately noticed, the entire group follows closely the charmingly irregular outline, and adapts itself very intimately to the varied contours of the property.

The Cathedral itself is of the maximum possible length, and the placing of the chapter house, the morning chapel, the residences, etc., is the result of a careful study of the variations in grade.

It is a very fortunate thing that the configuration of the land argues in favor of, indeed makes imperative, the lowering of the cloister-garth one story below the floor of the church, thus sinking the residential buildings and giving to the Cathedral itself the maximum of soaring impressiveness. The change in grade also makes possible an unusual but most effective type of south transept porch.

Almost no excavation will be necessary in the cloister-garth and the trifling

amount of such material as may be removed from the upper would be used at the lower corner. Any other arrangement of building than the one suggested would necessitate a great amount of very expensive filling. In the case of the crypt, practically no excavation will be necessary except for footings.

Regarding the type of design chosen by the architects, it seems apparent that the time has gone by when a living and constantly developing church can content itself in its visible expression with the unmodified types of design created in the past under vastly different conditions to express somewhat different conceptions. It is true that the fundamental ideals, both of religion and of architecture, are unchangeable and must forever remain so, but these immutable ideals have not been materialized in the past in a series of iron-clad forms that are insusceptible of modification and that must, therefore, represent the ultimate point to which we may aspire in our manifestation thereof. It has been suggested that the church is indestructible, a living organism, unchangeable in fundamentals, but infinitely adaptable in unessentials. If this is true, then the art through which and by which it expressed itself to the world must follow the same principle, i. e., while it adheres with unflinching fidelity to the great practice of Christian architecture, it must of necessity consider itself bound to vary the details of its expression almost unlimitedly.

The style chosen is not an archaeological restoration, nor would this firm of architects, under any circumstances, consider itself at liberty to advocate or to carry out ideals of this kind. It is not possible to say that the design offered in this case is thirteenth century, fourteenth century or fifteenth century, or that it is French, or German, or Spanish or English. Any exact rendition of any historic style can be no more than a mere galvanization, and this design is, in a manner of speaking, an outgrowth of all these styles and periods; for the present generation as has been said, is "the heir of all the ages," and those who

desire to make the best and fullest possible use of their patrimony are wise in their generation. Certainly such an edifice as this should indicate to the world that the Church is infused with a spirit of absolute life and unceasing development, and therefore inspiration has been gathered wherever it could be found, and the entire scheme studied with a view to the development of a logical unit.

The opportunity offered to the Diocese of Maryland for the development of a great creative work of vital art is almost unexampled; Liverpool, Washington and New York being perhaps the only possible rivals, while in the case of Liverpool alone is there so great a variety in contours, which, if properly handled, must result in effects of the utmost beauty and picturesqueness.

In considering the drawings themselves, it is interesting to note that the details of practical planning have been given as careful consideration as those of style; for any building, no matter how beautiful, that is ill-planned is certain to be counted a gross failure by future generations if not by the present one.

The architects are to be commended for the care with which they have studied such minor details as the arrangement of the bedrooms, etc., in the upper stories of the various dwellings. No long tunnel-like rooms will be found—quite incapable of being attractively furnished—the lighting of which, admitted at one end only, must prove wholly insufficient. It was endeavored to place the various departments of the group—Diocesan offices, missionary and charitable societies, meeting rooms etc., in such positions as to make them most convenient of approach and access, everywhere, adhering as closely as possible to the arrangement hallowed by centuries of venerable use. Thus, the visitor from overseas, wandering about the pile without a cicerone, would find the "slype" exactly where he would naturally look for it and would recognize the Dean's yard as promptly as at Westminster.



PERSPECTIVE DRAWING, CATHEDRAL OF THE INCARNATION, BALTI-
MORE, MD.
GRAM, GOODHUE AND FERGUSON, ARCHITECTS.

Only where the outline of the property, or the sharp slope of grade to the southeast, necessitated deviation from established tradition has any departure been ventured. So the morning chapel forms a continuation, not of the main axis, as is usual with lady chapels in England, but of the north choir aisle in order to take advantage of the opportunity for greater length here available even to the extent of actually spanning the roadway (wholly practical, but as a picturesque asset, equally valuable) by which tradesmen would make delivery of their wares at the carefully sequestered service-entrances of the Deanery and Canon's houses.

The Diocesan Library, the public entrance to which is guarded by an official who also may maintain supervision over the incoming and outgoing of those who wish personal conversation with the Bishop, is placed in a wing facing Charles Street. Its floor is at the same level as that of the Cathedral and, supposing the shelving to be of six tiers only, provides 2,600 running feet of book space—in other words, will house 31,000 volumes. This number of tiers of shelves, however, may well be greatly increased, the upper ones being reached by track ladders as is customary in most libraries of this description. By adopting for this room the alcove type, like Duke Humphrey's or Magdalen College at Oxford, not only can a greater number of volumes find housing than by any other method, but the quiet little alcoves, each devoted to a special subject, or number of allied subjects, and each with its table desk and comfortable chairs, should produce in the reader a pleasant sense of homely intimacy with the volumes about him.

Beneath the library, and level with the cloisters, a space of the same area is provided for the various missionary societies—the Ladies' Auxiliary, the Girls' Friendly, etc., the whole broken by folding partitions allowing the utmost flexibility of arrangement and indeed, should the occasion arise—permitting the throwing of the whole space into one vast room.

The Bishop's residence is a large

house—though none too large for the purpose it is to serve. On the ground floor will be found all the usual reception rooms of an English house of the same general character and in addition, cloak-rooms for ladies and gentlemen, access to each of which is somewhat concealed, but which give readily upon the Great Hall and the other more or less public reception rooms.

Beyond the dining room there is also a small breakfast room that may very likely be regarded by the Bishop's family as their customary dining-room, while, during warm weather, the terrace, raised a few steps, so as to overlook the enclosed garden, provides for al-fresco meals in the strictest privacy. The service quarters, though ample, will be found carefully sequestered, and the delivery of goods at the tradesman's entrance can take place with a minimum of disturbance.

From the Great Hall, two stories high and with a heavily timbered ceiling, the main staircase, as well as a lift, rises to the second floor, where is provided, not only the traditional "solar" or family sitting-room but also a suite of two bedrooms, each with its private bath, a small sitting-room (or to give it its ancient name "bower") for the Bishop's wife, and in the tower, a large guest room with dressing-room and bath.

Six or seven steps above the level of the second floor is the entrance to the private chapel and beyond this, occupying a position half private and half public, though effectively guarded by his chaplain's, or secretary's office, is the Bishop's own study, with ample space for his private library, and provided with a large fireplace and oriel window overlooking the quiet cloister garth. In the third story are six more bedrooms, besides the Chaplain's apartment, approached only by a private staircase, and a gallery in the chapel for the servants, whose sleeping quarters are in the roof story. The basement would, of course, provide plenty of storage space as well as for a laundry which could readily be equipped with mechanical dryers.

Immediately to the eastward is a rather squat tower beneath which is car-



THE MORNING CHAPEL, CATHEDRAL OF THE INCARNATION, BALTI-
MORE, MD. CRAM, GOODHUE AND FERGUSON, ARCHITECTS.
(From an original pen drawing by Bertram G. Goodhue.)

ried the arched and vaulted passage that forms the public entrance to the cloister-garth.

Beyond the tower is the porter's lodge, consisting of an office from which note may be taken of all who enter or depart from the "close," a kitchen, living-room, bedroom and bath. Beyond this again is the choir school providing accommodation for about forty resident scholars, but with class and masters' rooms for a greater number.

It is assumed in the planning of this part of the group that the well-equipped kitchen of this school may serve also for the preparing of dishes for such large refectations as may be served in the basement of the Synod Hall, now used temporarily as a church.

Beneath the Synod Hall a large sub-basement will be constructed which should form an ideal location for the power station that, since it provides heat, ventilation and hot water for the entire group, must be regarded as indispensable. To this end there is introduced frankly, as an architectural feature of importance, a stack or chimney carried high enough to provide sufficient draught, with a smoke consumer as a natural feature, and bearing a certain amount of ornamentation, including a small bell-turret.

At the north of the choir school and making a sharp turn to the eastward, following the angle of the school playground, are dwellings for three canons-resident, each practically like its fellow as to the number and disposition of its rooms, but quite dissimilar in arrangement. It is assumed that the canon occupying the first of these three houses—namely the one adjoining the school—will be head master of the school. There is a skillful planning of the junction of these two buildings, by which absolute privacy is obtained for the Canon's family and, at the same time, a very intimate supervision given him of the working of the institution under his charge.

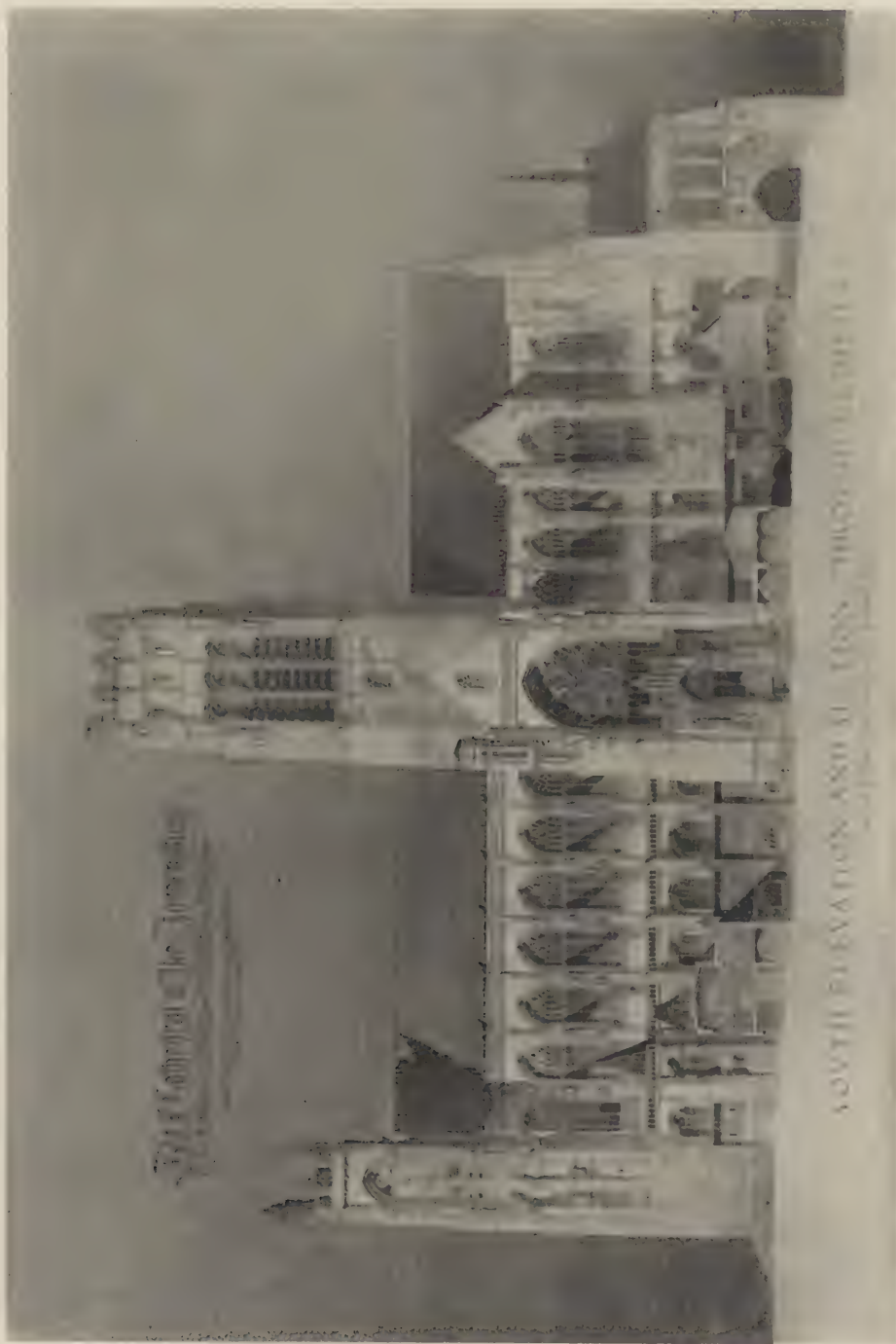
Beyond the last of the three Canons' houses and built against the actual south wall of the Cathedral is the Deanery. This position was chosen in order to

give the Dean the close personal connection with the Cathedral that is his due, a maximum of morning sunlight, and the little "yard" that is his invariable prerogative abroad.

Recognizing that upon him and his family, though in lesser degree, of course, than upon the Bishop, will devolve a certain amount of entertaining, it was endeavored, in the arrangement of the various reception rooms, to make this as simple a matter as possible. Through a small vestibule the Dean may enter the crypt, or the private office of the Diocesan, and on the floor above there is a means of direct access to the Cathedral itself and here, the door—on the church side at any rate—should be made as insignificant as possible. In the Deanery, there are also provided a little oratory and a special entrance, stairway and waiting-room, for those whose affairs are directly connected with the Dean in his official capacity.

Upon the opposite or north side of the choir, since they have not the same need of direct sunlight as a dwelling, are the various sacristies for the Bishop, Dean, clergy and choristers, arranged for convenience around a third (though very small) court. Here too will be found the chapter-house, readily reached from the Cathedral through a vaulted passageway, while, in the story below are placed various useful, even practically indispensable offices, such as a choir practice room, so placed as to render the sound issuing therefrom of the least possible volume; a Precentors and organist's library, two rooms and a bath for the verger's or porter's assistants, and a common room for the choristers wherein they may indulge in harmless recreation without anyone outside being any the wiser.

So much for the provisions of the plans upon their functionary and practical side. The Cathedral itself may best be described by reference to other buildings of the same kind. Its plan, with the exception of the single variation from type already mentioned, to wit, the placing of the morning chapel on the axis of the north rather than of the center aisle, is precisely similar to



SOUTH ELEVATION, ETC., CATHEDRAL OF THE INCARNATION, BALTIMORE, MD.
 CRAM, GOODHUE AND FERGUSON, ARCHITECTS.

most English examples of mediaeval cathedrals. To be sure, the design apart from its plan does possess elements not altogether English; the nave piers and arches, for example, are far higher than is usual in England, higher even than those of Paris or Laon, while in the vertical proportions of the nave, it was intended to approach more nearly the soaring majesty of Amiens than does anything in England with the possible exception of Westminster, which is not English Gothic at all, but a French church on English soil, just as Rouen may, in its essentials, be said to be an English church on French soil.

There has been some criticism of a frequent practice of Mr. Goodhue in dealing with smaller churches—a very useful, economical and convenient practice be it said in passing—of piercing the great projections of the lower portions of the buttresses with arches and then roofing over the intervening spaces—forming a low aisle, or rather ambulatory. This feature, indeed, has been introduced in their design for this very building to provide for wall monuments and memorials of the various sorts and to break the otherwise extreme bareness of the enclosing walls below the sills of the windows, as well as to permit the free circulation of ritual processions without disturbing the assembled worshippers; but attention should be called to the fact that this feature—prominent it is true in such various buildings by the same hand as the Chapel of the Military Academy at West Point, the South Church in New York, or the First Baptist Church in Pittsburgh—is hardly to be noticed here, so small and insignificant it is beside the great system of pier, arch and vault of the aisles proper.

Again, following English precedent, secondary transepts are introduced in the belief that the strongly marked lateral shafts of light, and consequent effect of greatly added length in the choir, produced by these are the finest achievement of the insular mediaeval builders next to the great square termination of their sanctuaries.

This same square termination has been

employed in the design under consideration for several reasons. Granting the beauty of the typically continental and un-English polygonal *chevet*—it has one serious structural, and another equally serious liturgical, defect—the structural one being the unpleasant stilting of all its arches, necessitated by their lessened width to overcome the pitching forward of all its vault conoids until they seem to be applied to, rather than to grow out of, the vertical wall from which they spring. In connection with the apse of the South Church in New York, this matter was very carefully gone into and a conclusion was reached that the difficulty is an insuperable one. It exists, *unsolved*, in all the mediaeval apses, and, despite the expenditure of a great deal of stereotomy on the part of the architects, and many refinements of warping and stilting, is quite as apparent in this particular example of their work. The liturgical difficulty is equally pronounced; the polygonal termination has its defects even when no more than a simple apse; but it did have a very definite value as the central basis for a string of radial chapels. These chapels were, of course, almost essential to the mediaeval Roman church, but were never so necessary in Britain, and since the Reformation have been practically valueless. Yet, without them, the polygonal ending becomes painfully bare, uninteresting, and without justification, quite unworthy of forming the east termination of so great and so intricate a structure as a cathedral. It would seem as though the English builders of the Middle Ages were aware of both objections and to meet them devised the monumental and wholly characteristic square end, which at York, Durham and Salisbury, may be reckoned one of the greatest glories of the greatest constructive style the world has ever seen.

Long before the time of Henry VIII, indeed from the earliest period, the English Church possessed and practiced distinct "uses" of its own, that crystallized with time into the beautiful, and typically British, Sarum "use." Far simpler even than that of mediaeval Rome, this did not call for, or indeed need, the multiplicity of chapels provided by the continental

The Cathedral of the Incarnation
 and its Subsidiary Buildings for the Diocese of Baltimore
 CRAM, GOODHUE AND FERGUSON, ARCHITECTS, IN
 NEW YORK AND BOSTON



WEST ELEVATION
 SCALE ONE INCH EQUALS EIGHT FEET

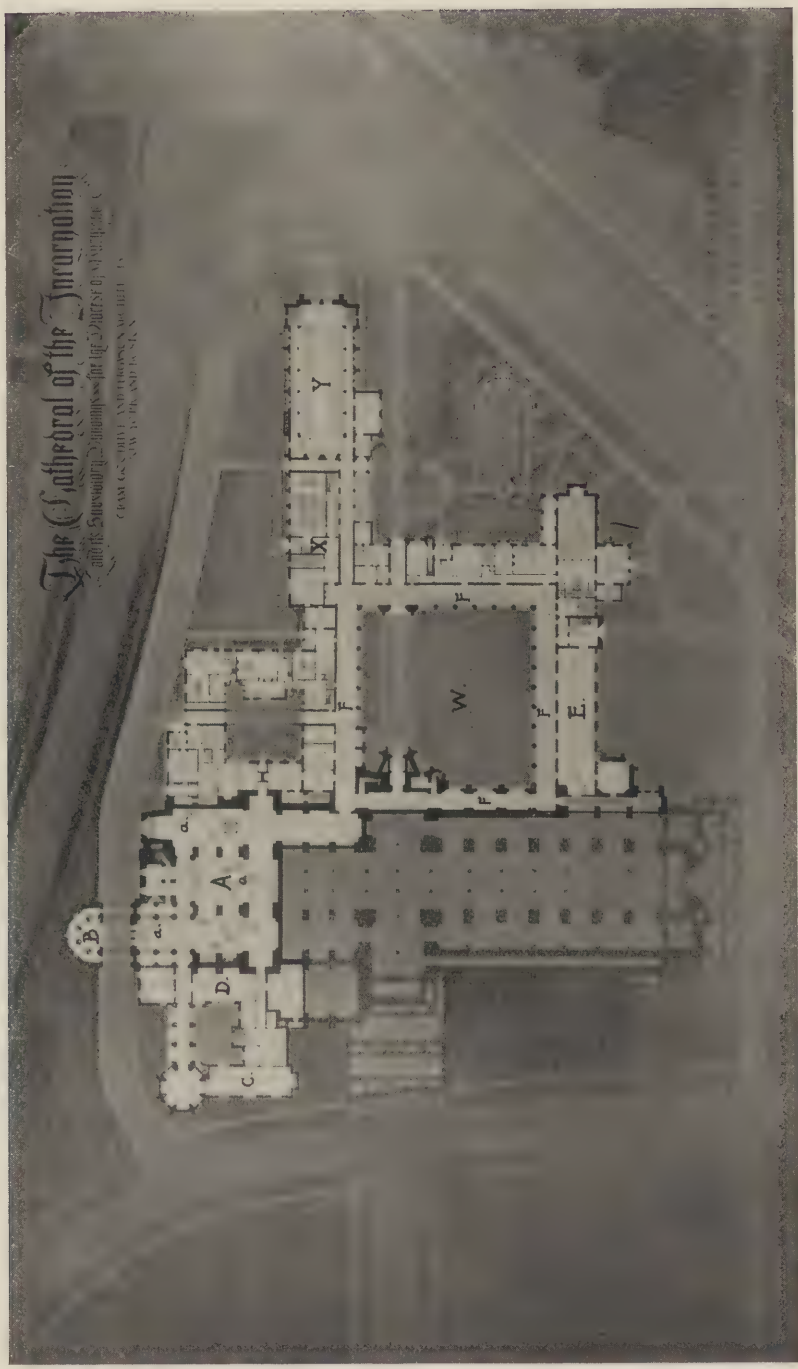
WEST ELEVATION, CATHEDRAL OF THE INCARNATION, BALTIMORE, MD.
 CRAM, GOODHUE AND FERGUSON, ARCHITECTS.



FIRST FLOOR PLAN. CATHEDRAL OF THE INCARNATION, BALTIMORE, MD. CRAM, GOODHUE AND FERGUSON, ARCHITECTS.

KEY TO PLAN.

- A. Narthex; B. Northwest Tower; C. Southwest Tower; D. Nave; E. North Aisle; F. South Aisle; G. Ambulatories; H. Baptistry; I. Crossing; J. North Transept; K. South Transept; L. Choir; M. Presbytery; N. North Choir Aisle; O. South Choir Aisle; P. Northeast Transept; Q. Southeast Transept; R. Parish Church; S. Morning Chapel; T. Chapel; U. South Transept Porch; V. North Transept Porch; W. Cloister; X. North Choir School; Y. Synod Hall; Z. Library; a. Bishop's Sacristy; b. Dean's Sacristy; c. Canon's Sacristy; d. Choir Sacristy; e. Chapel Sacristy; f. Chapter House; g. Open Air Pulpit.



The Cathedral of the Incarnation
 and the surrounding grounds
 CRAM, GOODHUE AND FERGUSON, ARCHT. 1911

KEY TO PLAN.

A, Undercroft; B, Oratory; C, Choir Practice Room; D, Choir-
 ister's Common Room; E, Guild Rooms; F, Cloisters; W,
 Cloister Garth; X, Choir School; Y, Synod Hall; a, Chapels.

PLAN OF CRYPT, CATHEDRAL OF
 THE INCARNATION, BALTIMORE, MD.
 CRAM, GOODHUE AND FERGUSON, ARCHT.

apse, or *chevet*, as it is termed when the ring of chapels is fully developed and complete.

During the earlier years of the nineteenth century—the period now known as that of the Gothic Revival—this bit of theological history was either overlooked or regarded as lightly as the deeply reasoned motives that underlie much of mediaeval architecture, and the type of gradined and be-candled altar that we now know is the product—not even of the mediaeval Roman Church, but of its distinctly corrupt modern practice—was cited as the perfect ideal and exemplar. The architects contend that the opportunity offered by the square ended sanctuary for the adequate observance of the proper Anglican “use” should not be wilfully thrown away in favor of a pseudo-Gallic apse lacking its chapels, that would—even at its best—lend itself but ill to the celebration of the rites and ceremonies of the Protestant Episcopal Church in America.

The general exterior massing of this impressive design may be pronounced strongly English in its effect in that three towers are employed—two flanking the west front, and another much vaster one rising above the crossing of nave and transepts precisely after the fashion of Canterbury, York, Durham and practically all insular Cathedrals of the first magnitude; but, in the supports of the central tower a defect makes itself felt in all ancient work that is here successfully obviated.

At the crossing, more than anywhere else in the interior, one feels the need of the greatest spaciousness, but the builders of olden times, by adding engaged and clustered shafts for the sake of strength to their tower piers, invariably narrowed instead of widened the nave and transeptal arches, thus largely destroying the very effect of space the central tower should give. In the present design, however, will be found no such narrowing or obstruction of the view of the congregation.

The internal proportions, as stated, are far more French than English. It might be said that in this respect the latter are inferior to the former in lack-

ing the element of majesty. The vaulting, too, is strictly scientific, and therefore, French,—that is, its conoids tend rather to the triangular than to the rectangular form. Thus the thrust of the vault is concentrated at the center of the buttress where it belongs, rather than spread over a portion of the contiguous side walls, as was in England, almost invariable. The number of ribs, too, is the necessary number only, as at Amiens, with no foolish added *liernes*, as is the case in the lath and plaster ceiling of Ely, or artistically indefensible apical ribs as were only too common in England.

In its general dimensions the design must be classed with such English Cathedrals as Gloucester, Lichfield and Wells, or such French examples as Bourges, Rouen or Laon.

Throughout the design there is interesting evidence of an intent to maintain and make manifest the ethnic derivation of America and the American Church from England, employing the motif and effects of other varieties of the Gothic style only when such were felt to be of greatly superior value.

Thus there is shown on the plan, and in one of the three fragmentary sketches, a north porch for precisely the same reason that such a feature may be supposed to have been employed at Chartres, namely, to provide on this side a constructed set of deep shadows and play of light and shade to replace those given the other sides of the building by the direct rays of the sun.

The architects have, with the knowledge, though not necessarily the approval, of Mr. Frederick Law Olmsted, Jr., indicated the desirability of a new street to run directly on the axis of the north transept to an indeterminate point, believing that such a road would add to, rather than detract from, the value of the property into which it cuts by providing greater and more distinguished isolation for the estates on either hand, as well as a most useful “mews” for stable and tradesmen’s entrances, and from which the view of the great central tower and transept front with its rose window and elaborately sculptured porch, framed by

The Cathedral of the Incarnation
and its Sanctuary Buildings
 in the Diocese of Baltimore
 CRAM, GOODHUE AND FERGUSON ARCHTDS.
 NEW YORK AND BOSTON



TRANSVERSE SECTION

SCALE ONE INCH EQUALS EIGHT FEET

EAST ELEVATION

EAST ELEVATION AND TRANSVERSE SECTION,
 CATHEDRAL OF THE INCARNATION, BALTIMORE, MD.
 CRAM, GOODHUE AND FERGUSON, ARCHITECTS.

high walls and overhanging trees, ought to prove most effective.

The little service roadway that roughly coincides with the easterly boundary of the property is of the utmost practical value, and the fact that it is, rather surprisingly, carried beneath the morning chapel is no bit of forced picturesqueness, but the quite logical outcome of needing to get, by an easy gradient, from the intersection of St. Paul street and University Parkway on the south, to Thirty-seventh street on the north.

In dealing with the designs shown on paper and in drawing attention to certain features that might readily be overlooked by those anxious only as to the effect of the group as a piece of architecture pure and simple, consideration has not so far been directed upon one of the most vital of all matters connected with building of any kind, though doubly vital in a House of God. This is the quality of its workmanship. To this frequently forgotten or ignored element is due in very great measure the beauty and charm of all ancient work and to its absence may be laid many of the short-comings of the modern imitations of the past with which the earth is marred.

In one's admiration of the old cathedrals, it must ever be remembered that everything down to the most apparently trifling detail was produced in an age less materially advanced than ours, but far more cultivated on its artistic and spiritual sides. Then the simple and unswerving faith of each laborer gave strength to his mind and eye and hand—and miracles of patient artistry were the result. Today we must, perforce, deal with craftsmen of very different calibre and ideals.

The masterpieces of the Age of Faith were not produced for definite sums, in a given length of time, by commercially minded contractors, themselves depend-

ent in turn upon the constantly veering viewpoint of trades-union councils, and the smooth running of all sorts and kinds of mechanical engines.

If anything that shall at all adumbrate the glories of old time is the desire of the Diocese of Maryland, the architect chosen to design its new Cathedral must, of his knowledge, experience and intent be able to bring to its building the very nearest modern equivalent for the faithful craftsmanship of the past.

A design may be drawn upon paper—nothing is easier—or even modelled in "staff"—the accepted material for fair buildings, that would, if cleverly painted, yield quite acceptable photographs; but a genuine Cathedral is quite another matter.

Every portion of its vast fabric must be absolutely the best of its kind, in design, artistry and workmanship.

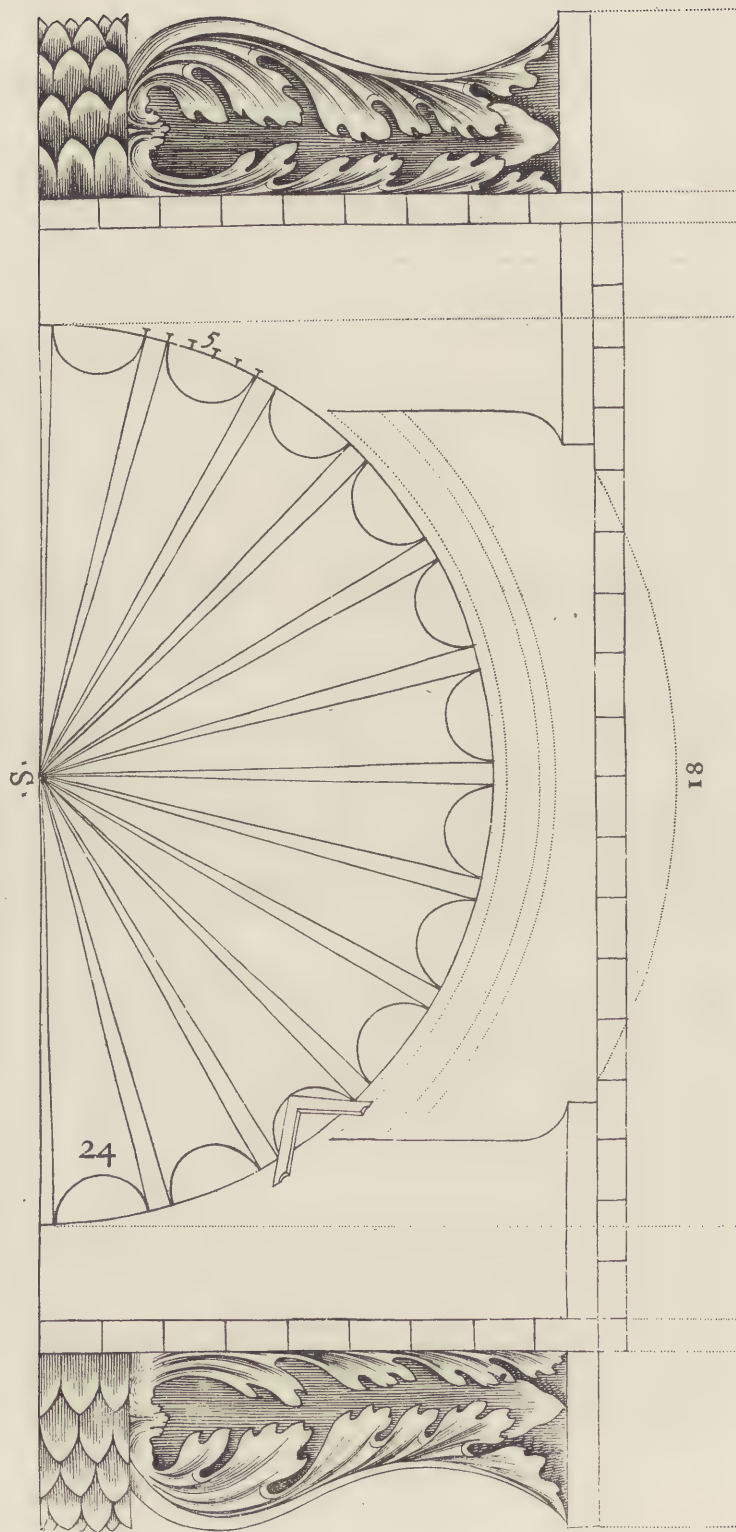
In offering this series of drawings, it is a significant fact that the architects did not regard it as in any degree final. Architecture is a growth, like everything else, and any architect, no matter how able, develops as his building grows and takes shape beneath his hands. He may project, in terms of time and space, an ideal concept; but if this is to adapt itself with all delicacy to local and contemporary conditions, he must hold his mind at all times free and open to the suggestions and sympathetic co-operation of all associated with him in the work; both clergy and laity, from the Bishop down to the humblest craftsman.

And not only the architect, but all those associated with him in the rearing of a new and mighty Cathedral Church must remember that, after all, such a building must stand when complete not as the expression of the thought of one man—or group of men—but rather as voicing the *highest* ideals and aspirations of humanity.



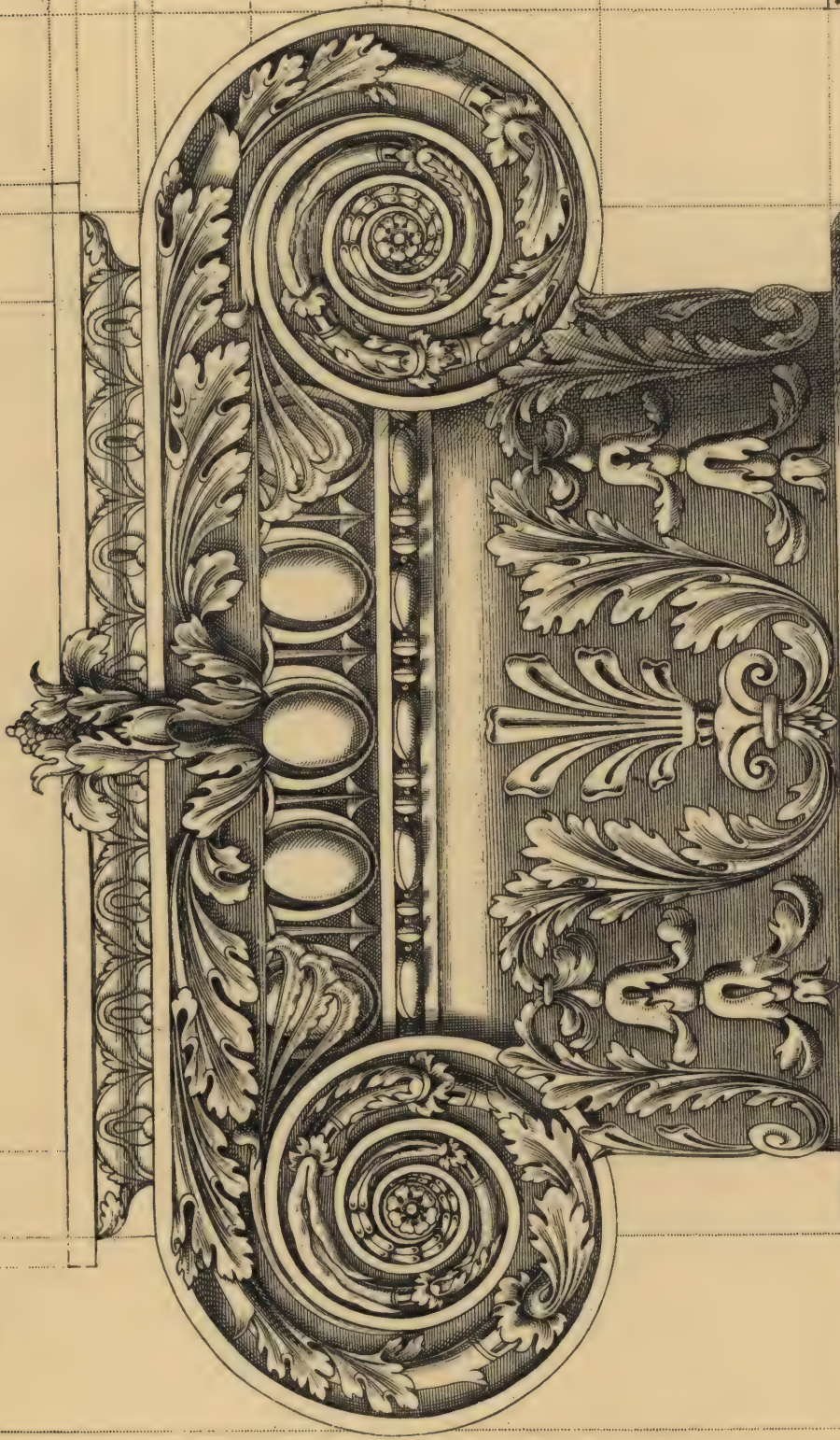
PERSPECTIVE DRAWING OF THE INTERIOR, CATHEDRAL OF THE INCARNATION, BALTIMORE, MD. CRAM, GOODHUE AND FERGUSON, ARCHITECTS.

◊ POITEVIN ◊ SEIGNEUR ◊ DV ◊ LIGNERON ◊ MAUCLERC ◊



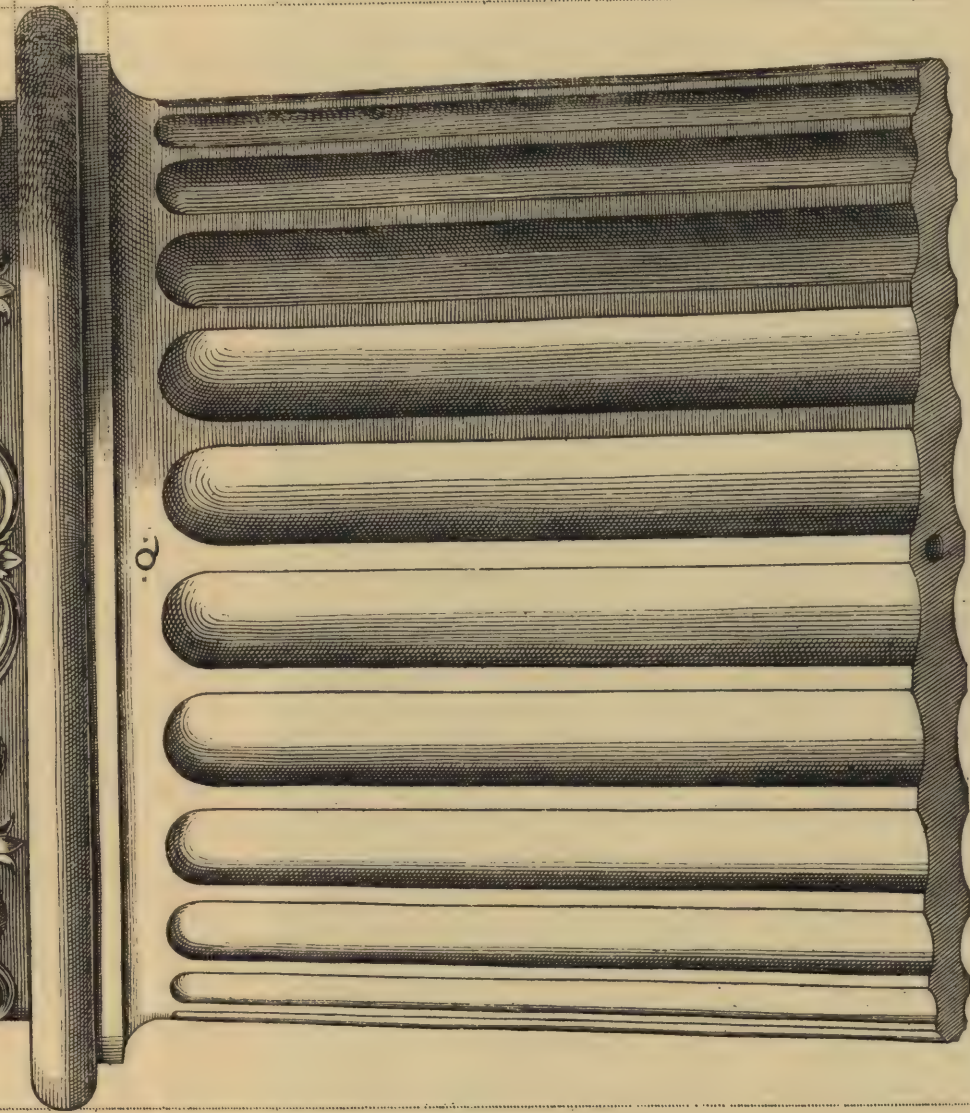
PLAN LAY-OUT OF COLUMN SHOWN
BELOW ON DETAIL PLATE NO. 4.

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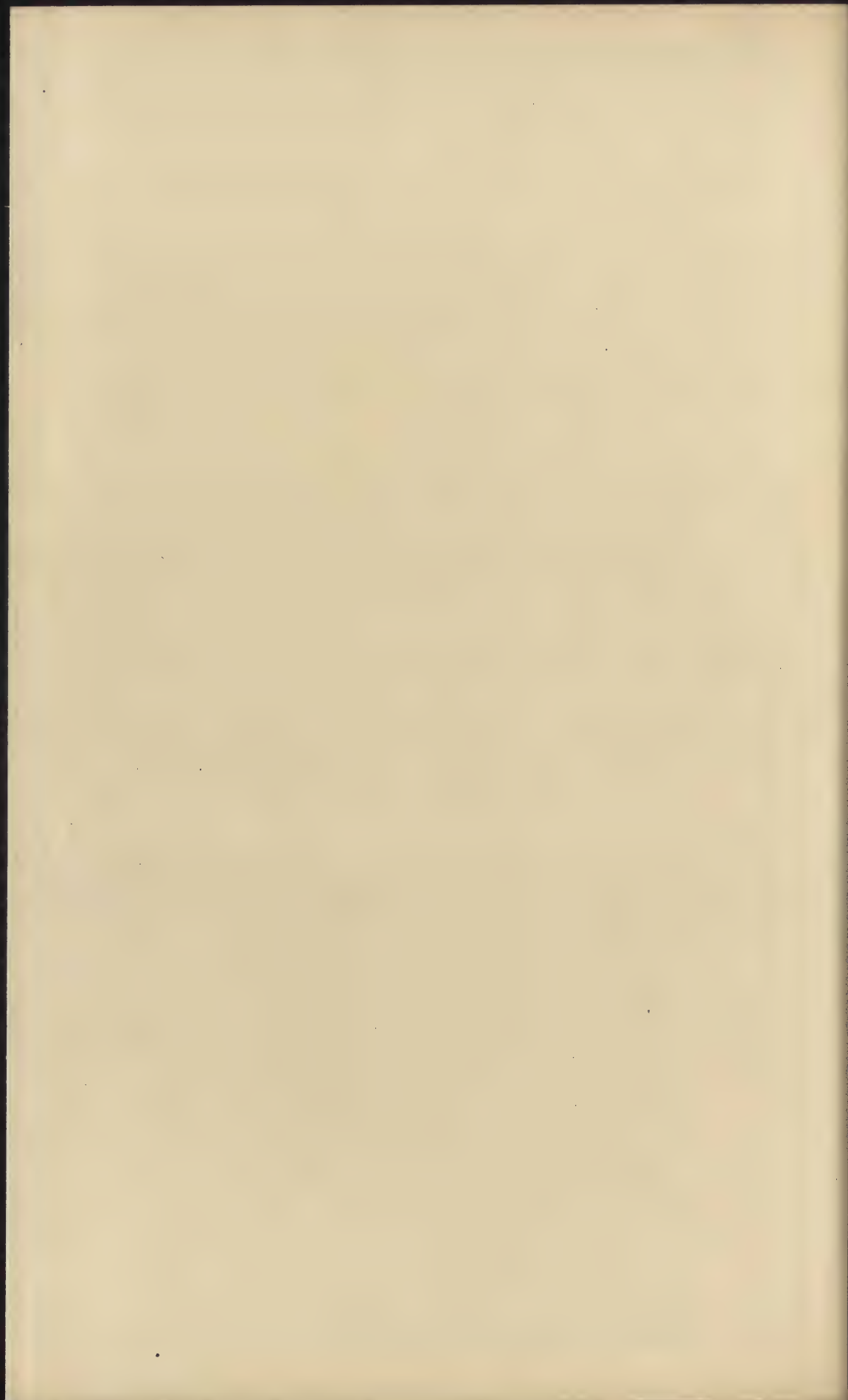


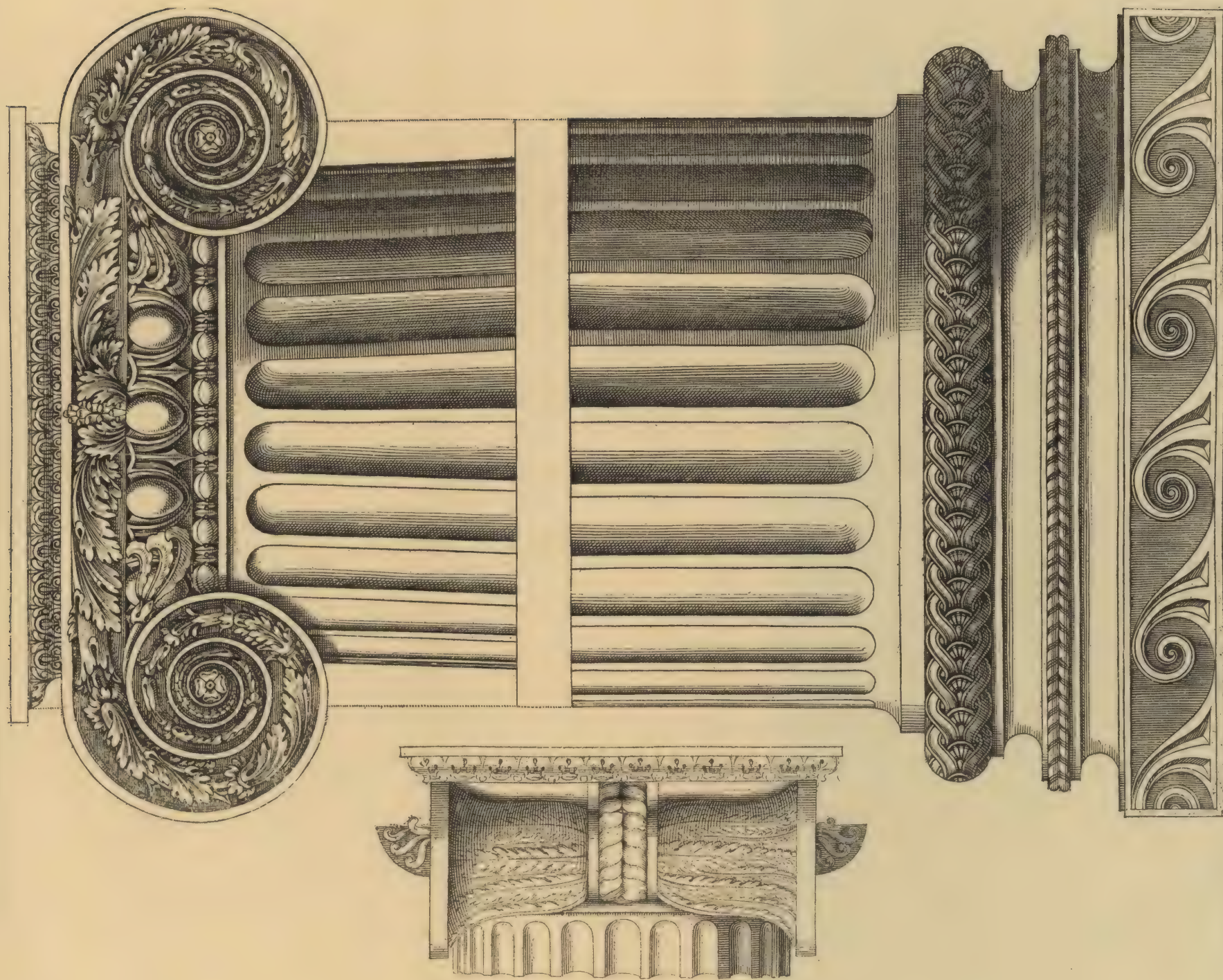
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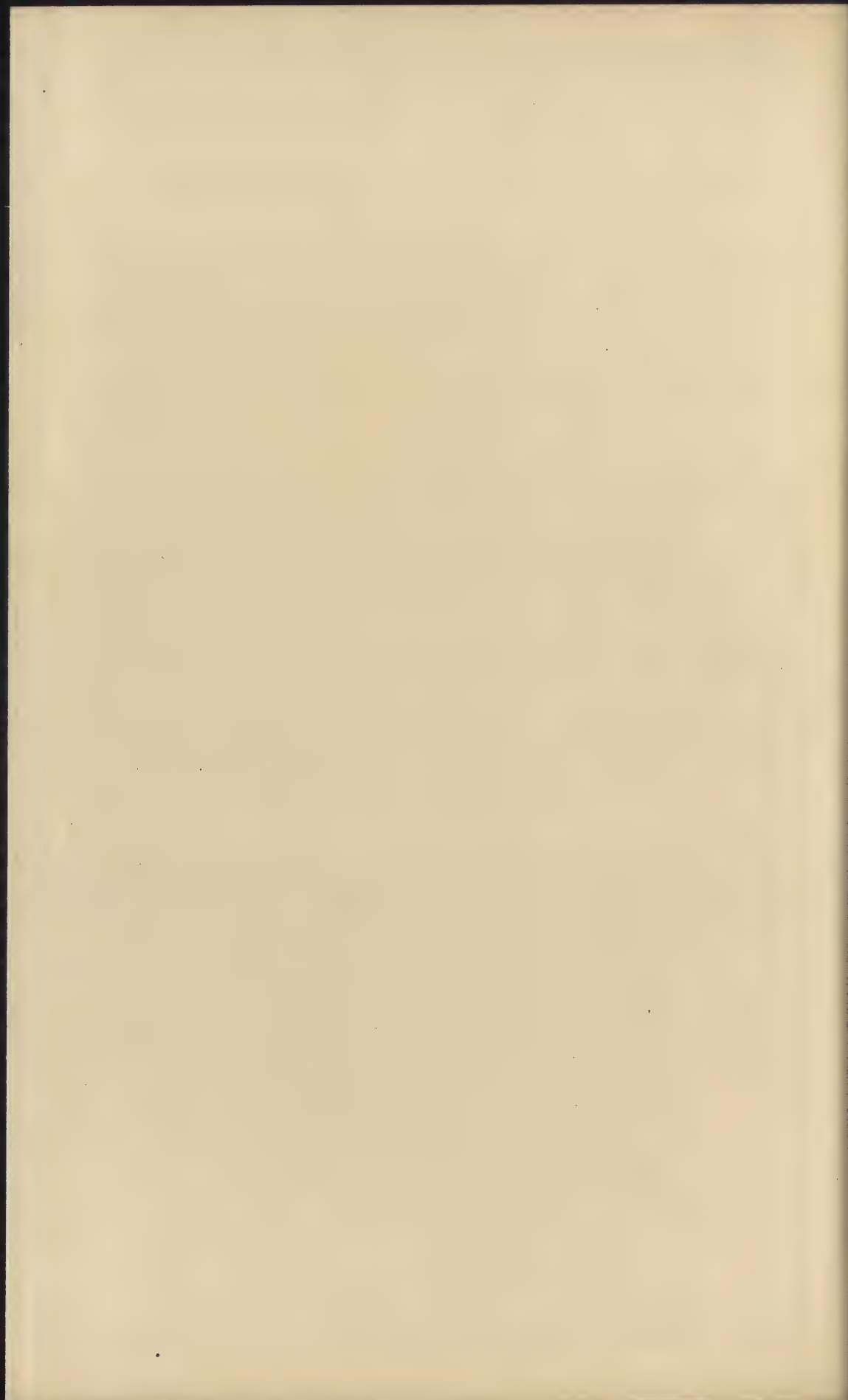
♦ B ♦
A COMPOSITE IONIC CAPITAL
FROM JULIEN MAUCLERC, A. D. 1600



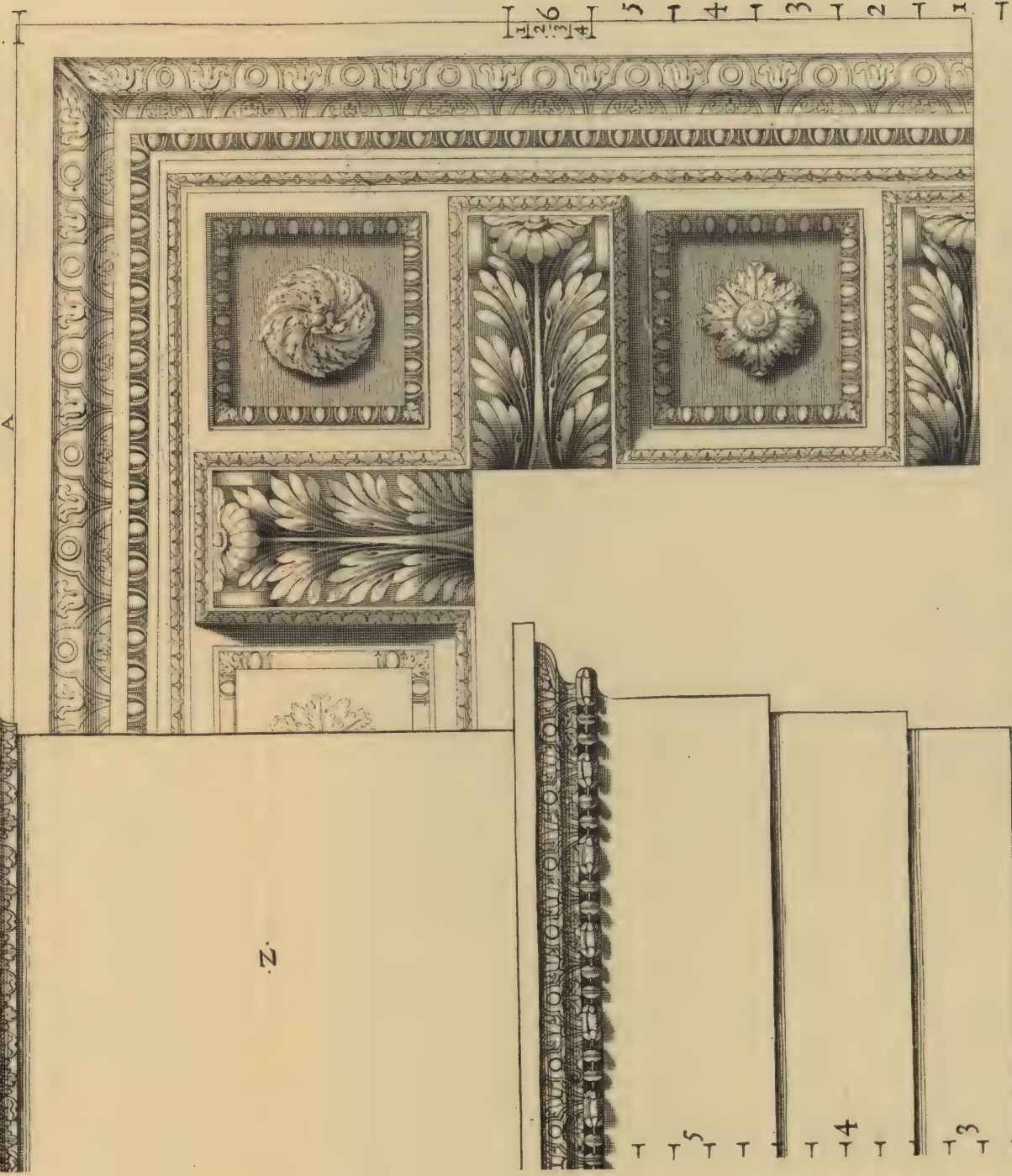
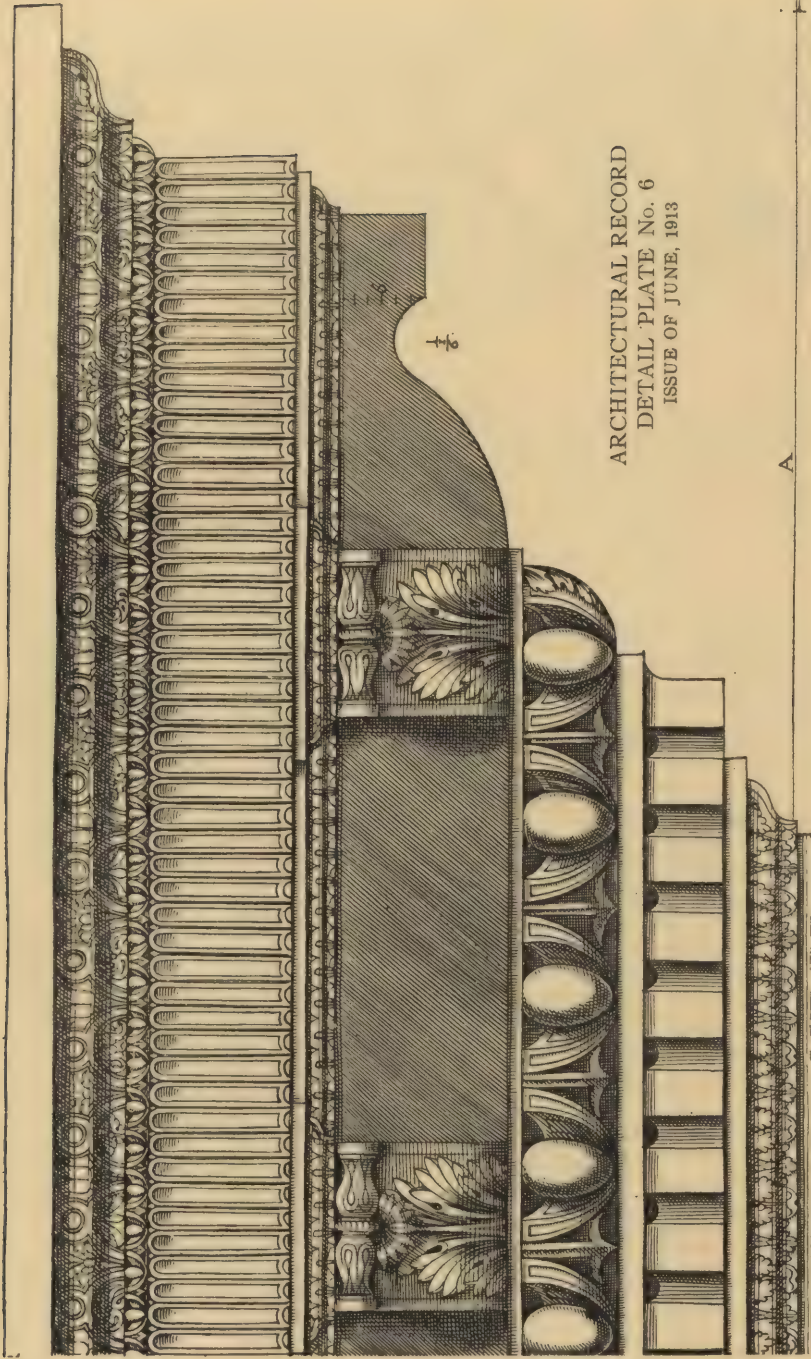


ARCHITECTURAL RECORD
 DETAIL PLATE No. 5
 ISSUE OF JUNE, 1913

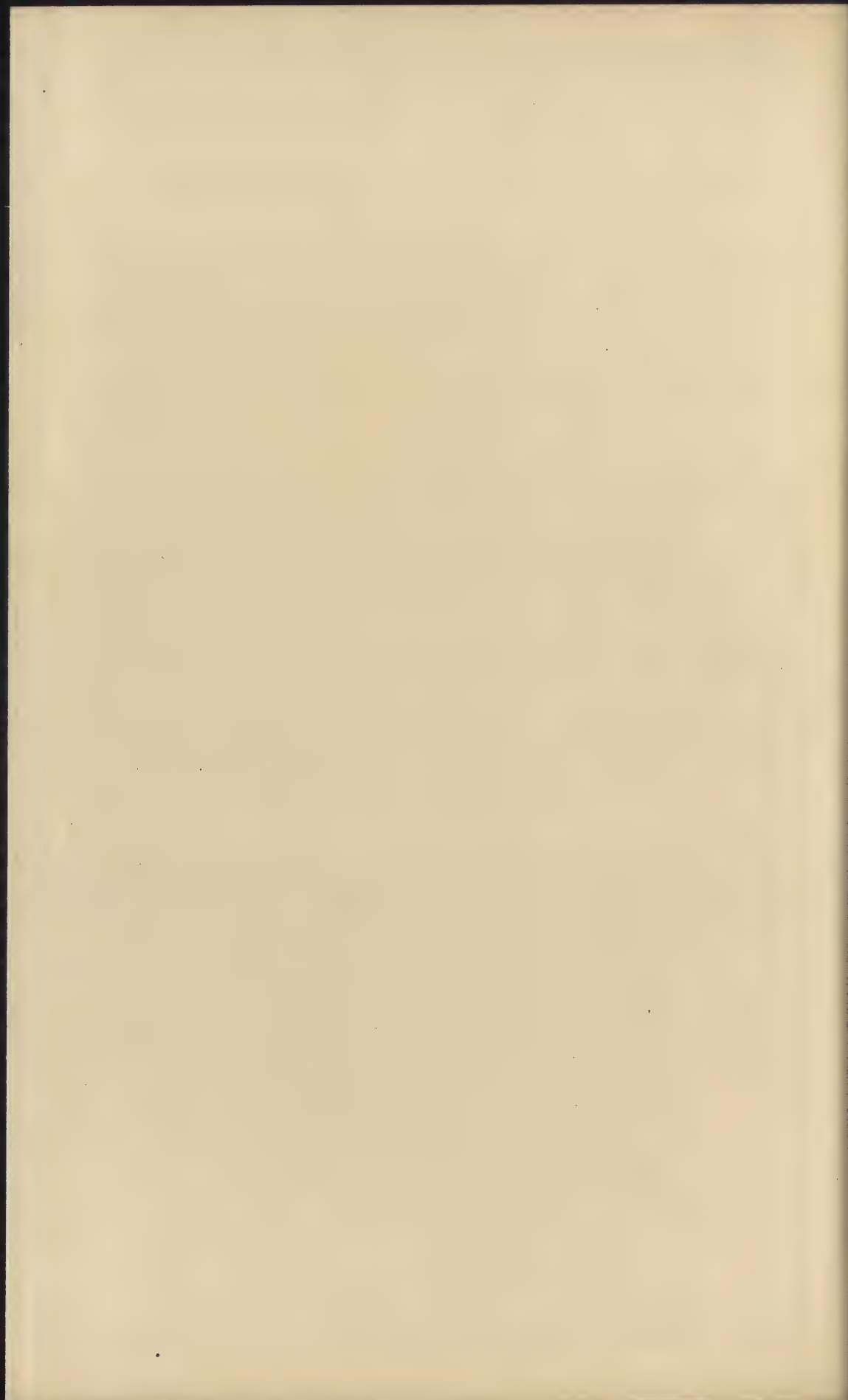
AN ORNAMENTED IONIC COLUMN
 FROM JULIEN MAUCLERC—A. D. 1600



ARCHITECTURAL RECORD
 DETAIL PLATE No. 6
 ISSUE OF JUNE, 1913



DETAILS OF A CORNICE
 FROM JULIEN MAUCLERC, A. D. 1600



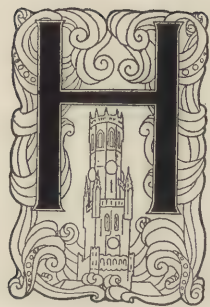


A DETAIL OF ARCHITECTURAL ORNAMENT.
Drawn by Julien Mauclerc, A. D. 1600.

THE ORDERS ACCORDING TO JULIEN MAUCLERC

NOTES ON A RARE WORK BY
AN EARLY AUTHORITY~

BY JOHN J. KLABER



HISTORY does repeat itself, sometimes, even though there is a proverb that says so. Professor Ware, in the introduction to his "American Vignola," tells how, after developing a complete system for drawing the orders without the use of the usual

modules and parts, he found substantially the same thing in James Gibbs' "Rules for Drawing the Several Parts of Architecture," published in London in the year 1732. But neither Professor Ware nor Gibbs seems to have been aware that Julien Mauclerc had already invented a system that possesses the same advantages, years before they thought of doing any such thing.

Mauclerc's book seems to have been issued for the first time at La Rochelle in 1600. Its popularity must have been considerable, for another edition, engraved by Pierre Daret, was published at Paris in 1648. Since then this work has become very rare, and even the author's name is almost forgotten. No

mention of him or his book occurs in any recent work known to the present writer, excepting the library catalogues of the South Kensington and British museums, both of which mention its existence, but give, of course, no detailed information.

Nevertheless, the book is by no means without interest. At a time when the works of Vignola, Palladio, Scamozzi, Serlio and others were still fresh, Mauclerc brought out a series of drawings of the orders differing widely from them all. While they merely interpreted and, in a way, standardized the proportions of antiquity, he dared to set up a canon of his own. His Tuscan order has but six diameters, his Doric seven, his Ionic eight, his Corinthian nine. It is only his composite order that follows the usual proportion by having ten diameters. And all this, not through ignorance, but through deliberate choice. Nor does he limit himself to a single type for each order.

He shows two widely different varieties of the Tuscan, as many of the Doric, four of the Ionic, three of the Corinthian, and three of the Composite also.



A DETAIL OF ARCHITECTURAL ORNAMENT.
Drawn by Julien Mauclerc, A. D. 1600.

Mauclerc's geometrical ingenuity is not less notable than his artistic freedom. The use of circles and of diagonal lines at 45 degrees, for parts that are equal in height and width, the system of divisions and sub-divisions that is the chief merit of Professor Ware's book, the use of the "perfect parallelogram" in the proportion of the Doric pedestal, the relation of different parts by the plumb-line, the carpenter's try-square as a measure of semicircular flutes, even the use of lines at 60 degrees, all these are devices that he had no hesitation in using.

Mauclerc's ornament is profuse, and at times remarkably well drawn. The plates, vigorously engraved, are worthy to rank with the best work of the period. It is, however, remarkable that while the fluting of columns is correctly projected, the carving on circular mouldings is drawn, in nearly all cases, as though these were straight.

To present adequately the characteristic features of the work would require a complete reprint, but the plates that have been selected for reproduction here give

some idea of its most striking peculiarities. The Doric capital and base are remarkable for their lavish ornament, differing greatly from that which is generally associated with this order. The two variants of the capital correspond to the usual denticular and mutular forms of the order. The section of the flutes is a quarter-circle, as the plan indicates. The Attic base is used instead of the usual form, which does not occur in any of Mauclerc's drawings. In this he follows the precedent of Palladio, who uses the Attic base with the Doric order, rather than that of Vignola.

The system of division, as shown in this plate, is almost identical with that of Professor Ware. The capital is divided into three equal parts, necking, echinus, and abacus. One third of the abacus is taken for mouldings, and one third of this for the fillet, the rest for the cyma. One third of the echinus is taken for the small mouldings, and this again is divided in three. The mouldings below the necking take one-half the height of the latter, two thirds of this being taken for the half-round, one third for

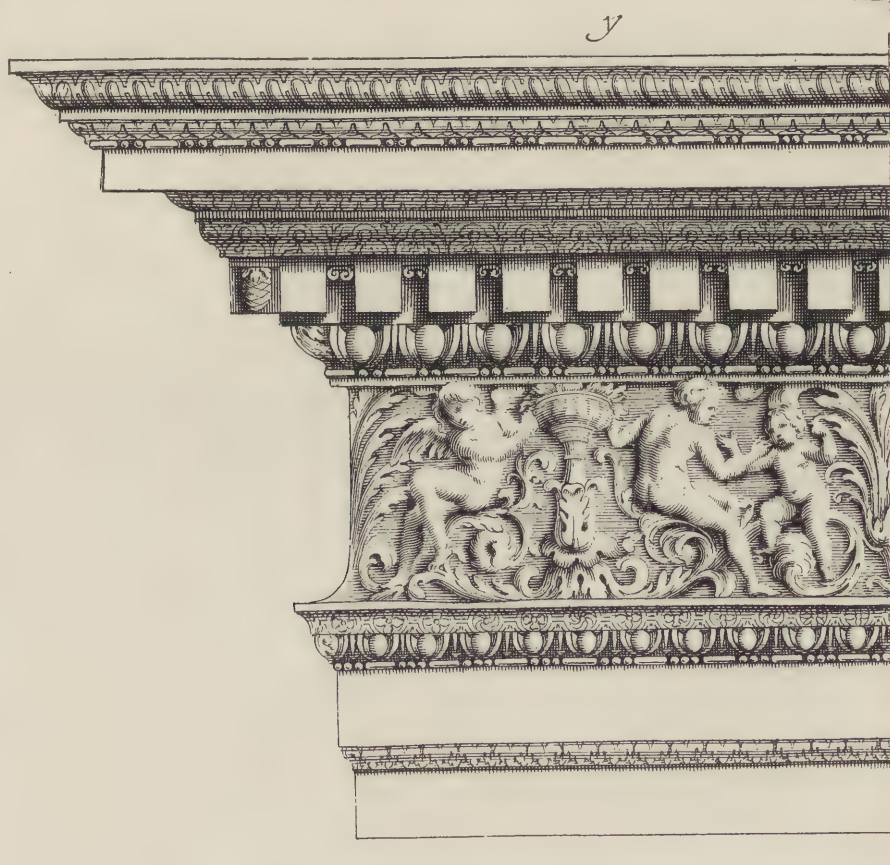


A DETAIL OF ARCHITECTURAL ORNAMENT.
Drawn by Julien Mauclerc, A. D. 1600.

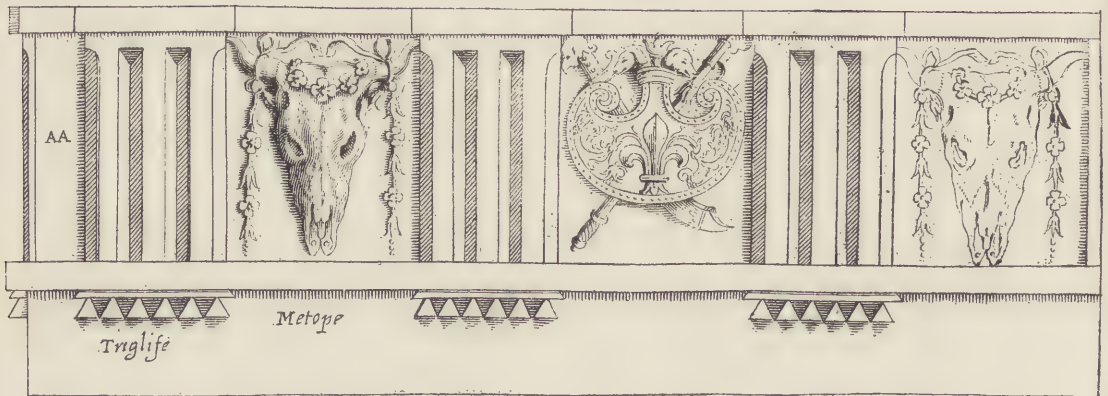
the fillet. The base is similarly divided. One third is taken for the plinth, one fourth the remainder for the upper tones; the remaining three-fourths are divided into two equal parts, one of which forms the lower torus, the other the scotia and the two fillets, each of which is one seventh of the entire division. In all this there is no indication of the usual modules and minutes, nor does any occur in the entire work, except in the plates copied from other authorities, at the end of the book. A peculiarity of the drawing, already referred to, and well shown in this plate, is the failure to project the ornaments on the circular mouldings.

The Ionic capital and base are also remarkably rich, for in all these examples the author has tried to show every possible enrichment. The base is similar to

one of those given by Palladio, though more richly ornamented. The mouldings, in the original, were laid off in a manner similar to that already described, but these divisions have been suppressed in the reproduction, to avoid too great a reduction in scale. The leaf ornament in the volutes recalls some of the late Roman examples, and is notable for its spirited draughtsmanship. Palladio gives a similar example. The other Ionic capital is still more ornamental, having the addition of a decorated necking. The ornament of this feature is a modernized form of the Greek honeysuckle ornament, but differing very much from its prototype. The plan of this capital shows a defective form of baluster, and the use of the try-square in forming the semi-circular flutes. It is interesting to note



A COMPOSITE ENTABLATURE.
Drawn by Julien Maclerc, A. D. 1600.



DORIC FRIEZE AND ARCHITRAVE.
 Drawn by Julien Mauclerc, A. D. 1600.

that here, as in all Mauclerc's examples, a listel occurs in the axis of the column instead of a flute.

The Corinthian base here shown is still more richly decorated, all its mouldings being carved. It shows, again, the same system of divisions. A number of Roman orders have enrichments of a similar nature, but the example most closely resembling this one occurs in the Baptistery of Constantine. It is cited in Palladio, and it is probable that Mauclerc derived it from this source.

The two Corinthian entablatures show the author's fertility in the use of ornament, and his defiance of an absolute standard of proportions. One of them gives the section through the rosettes in the coffers, a section obviously impossible except in metal and possibly intended to indicate its use.

This combination of section and elevation is common in the drawings of the Renaissance, both in France and in Italy. The second fascia of the architrave is carved with a sort of honeysuckle ornament, a feature apparently imitated from the so-called temple of Jupiter Stator, now usually known as Castor and Pollux. The carving of the cymatium is a distinctly Renaissance pattern.

The other example approaches more nearly to the usual proportion, although the profile of the modillion is incorrectly drawn, and the spaces between the dentils appear to be semi-circular in plan, rather than rectangular. The use of a

dentil on the angle is also very rare in the ancient examples, although it occasionally occurs.

The composite entablature, here shown at a small scale, has again the Renaissance carving on the cymatium, in connection with a cornice that follows closely many of the antique examples. Even the little volutes between the dentils are to be found in some few of the Roman temples, as cited by Palladio, as well as in the fragment of a colonnade still standing in the Forum of Nerva.

The Doric detail, although almost identical with that given by Vignola, is interesting because of the quaint and skillful work of the engraver. The plate from which it is taken is one of the finest in the book. In the accompanying drawing at small scale the shape of the guttae may be noticed. Though rather unfortunate in effect, this form occurs in all Mauclerc's drawings of this order.

The small borders accompanying this article are also taken from the book, and are intended as ornament for the friezes of the Ionic and Corinthian orders, excepting the one which consists of a volute without human figures, and which may have been copied from the Maison Canée at Nîmes, or from several other Roman temples, they appear to have no antique precedent.

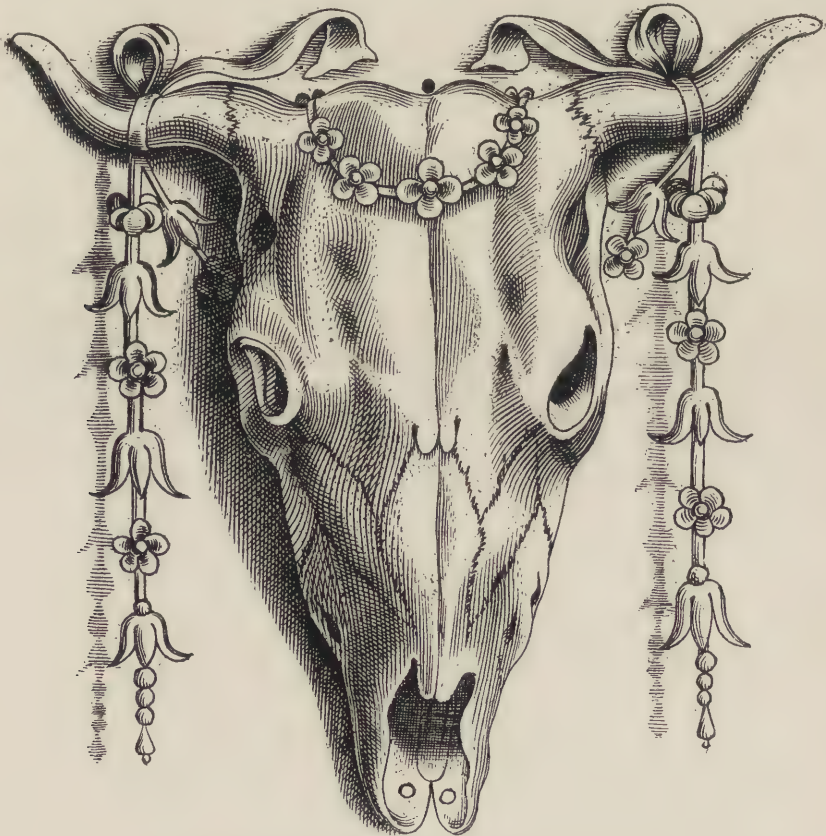
Because of the necessary reduction in scale, and consequent loss of clearness, it has been found impracticable to give here any of the plates showing the general proportions of the orders. These, how-

ever, are to be found in the original work, and in most cases for the orders both with and without pedestals. The system of setting out the proportions is very similar to that recently made popular by Professor Ware, and dispenses with the inconvenient modules and minutes of the usual treatises. Among the other plates are rusticated Tuscan order, similar to many examples of the period, and a fantastic form of composite with great consoles cutting through the frieze and supporting the cornice.

Mauclere devotes six plates each to the Tuscan and Doric orders, eleven each to the Ionic and Corinthian, and seven to the Composite. The work concludes with a number of plates showing the proportions of arches and intercolumniations, a few details of classic ornament, the rules of perspective (of which the author might have availed himself to

better advantage), Vignola's methods for the drawing of entasis and for twisted columns, and a series of drawings, at small scale, of the orders according to Vignola, Palladio and Scamozzi. These show that Mauclerc was familiar with these established types, and that if he did not use them it was not from lack of knowledge, but because he preferred his own.

The title of the book, as engraved on the plates, is "Architecture de Julien Mauclerc, Gentilhomme Poitevin, Seigneur du Lignerou Mauclerc." But for a single exception, this is spread over two plates, one of them bearing the heading "Architecture de Julien Mauclerc Gentilhomme," and the following: "Poitevin, Seigneur du Lignerou Mauclerc," these two forms alternating throughout the work. The title page reads, however, "Le Premier Livre d'Architec-



DETAIL OF OX SKULL FROM DORIC FRIEZE.

Drawn by Julien Mauclerc, A. D. 1600.

ture," etc., so it may be that Mauclerc intended to extend his work, but if this was done, no trace of it remains.

What was the extent of Mauclerc's influence on the work of his time? It is difficult to say. The reign of Henri IV., in which this book first appears, marks a turning point in the history of the French Renaissance. The freer forms of the sixteenth century had gone out of use, and the more classic period was beginning.

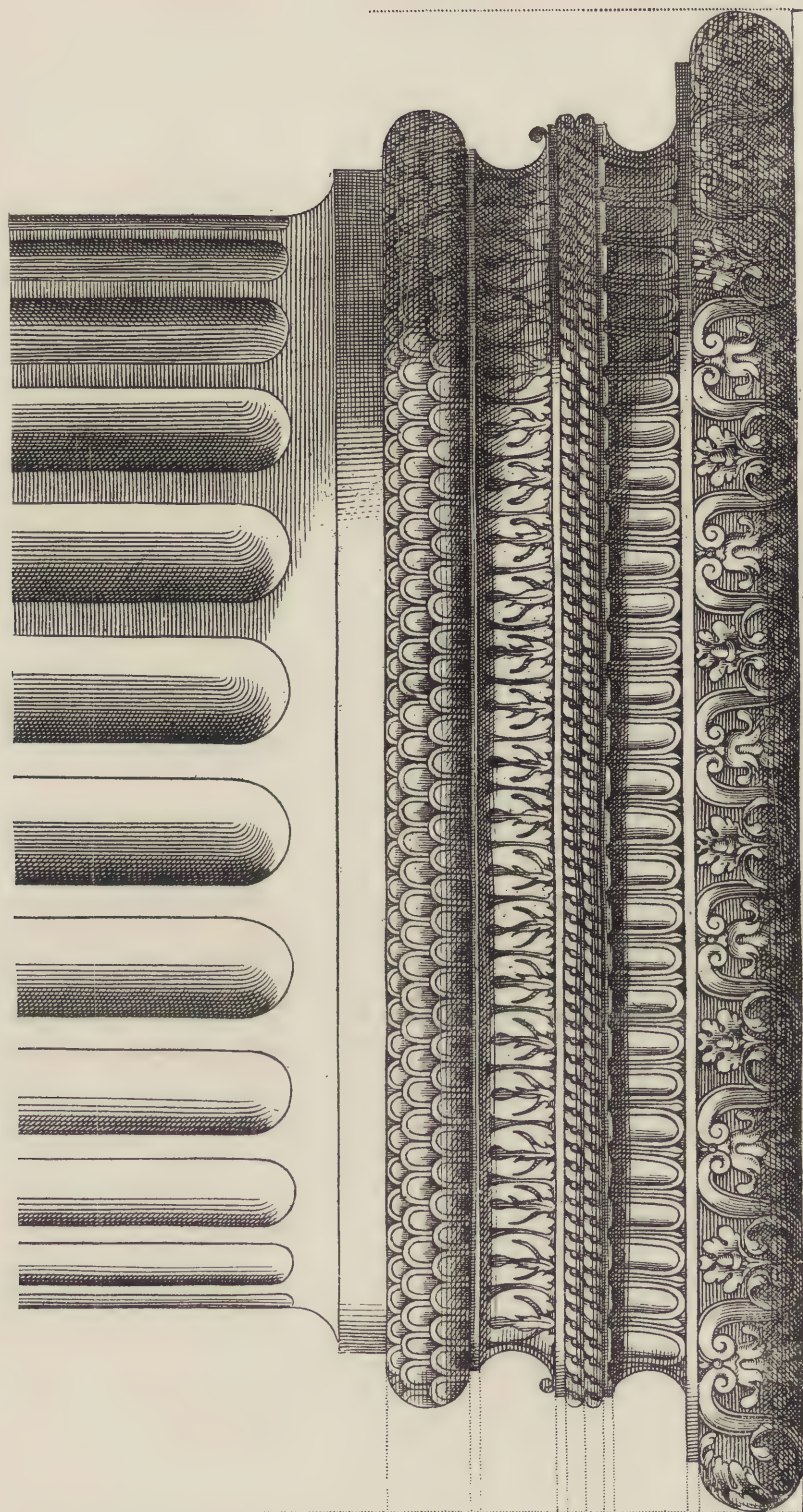
This reign as well as the following one are marked by a certain heaviness and richness that we find in Mauclerc, but in this, no doubt, he merely shows the spirit of his time. A more certain proof of his influence may be found in such a structure as the main front of the Hotel de Ville at La Rochelle. This was

commenced in 1605, by Barbot, and shows, as one might expect, in its exuberant but heavy detail, in the sturdy rusticated pillars of the ground floor, with their peculiar double arches, and, above all, in its strange and fantastic proportions, the inspiration of a work published in the same city only a few years earlier. One can even imagine that Mauclerc himself had some part in the making of the design.

No other building shows such distinct evidence of its inspiration from this source. And yet it seems impossible that a work which was so popular as to be reprinted after nearly half a century should not have had a considerable effect on the work of the time, even though at this distance we can no longer trace it distinctly.



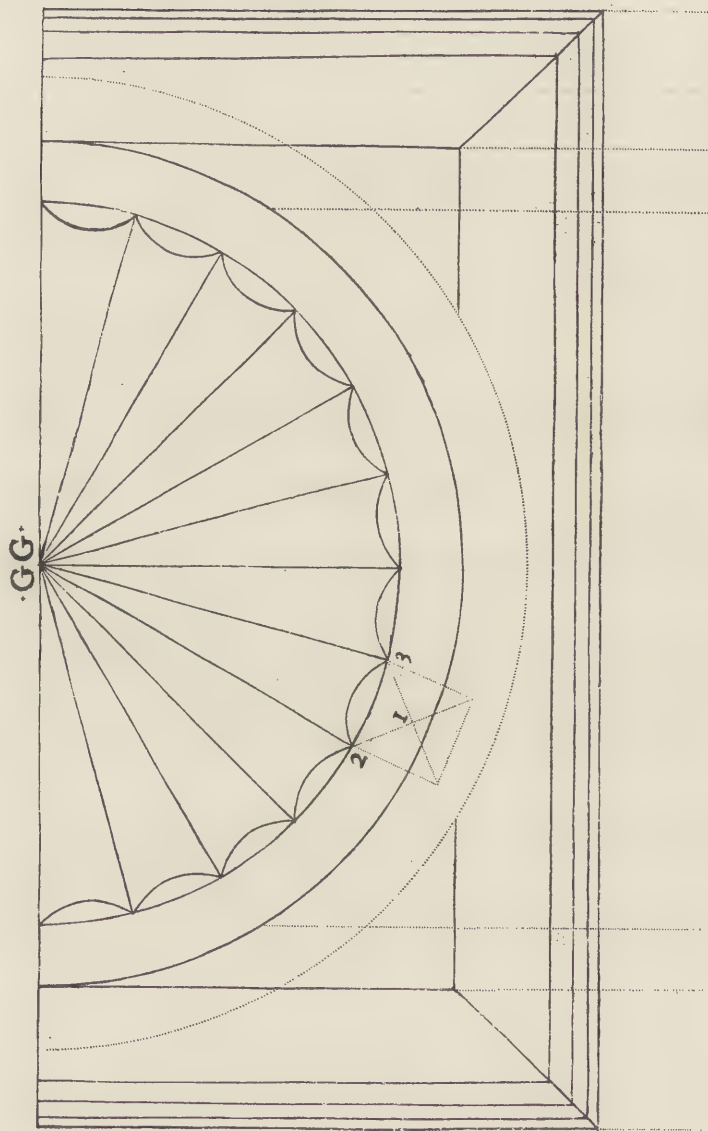
A DETAIL OF ARCHITECTURAL ORNAMENT.
Drawn by Julien Mauclerc, A. D. 1600.



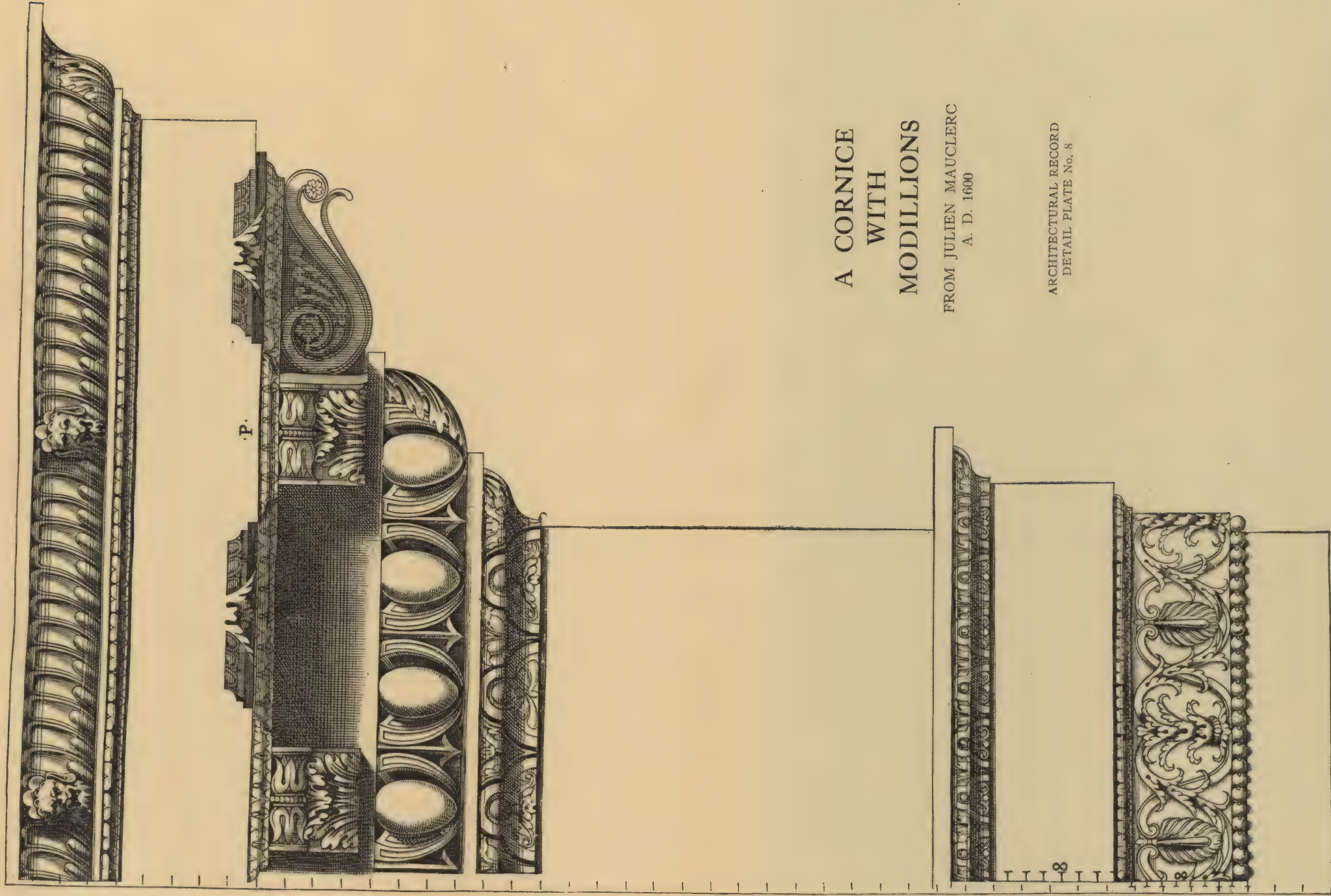
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DETAIL OF AN ORNAMENTED CORINTHIAN BASE.
Drawn by Julien Maclerc, A. D. 1600.

◊ POITEVIN ◊ SEIGNEVR ◊ DV ◊ LIGNERON ◊ MAUCLERC ◊



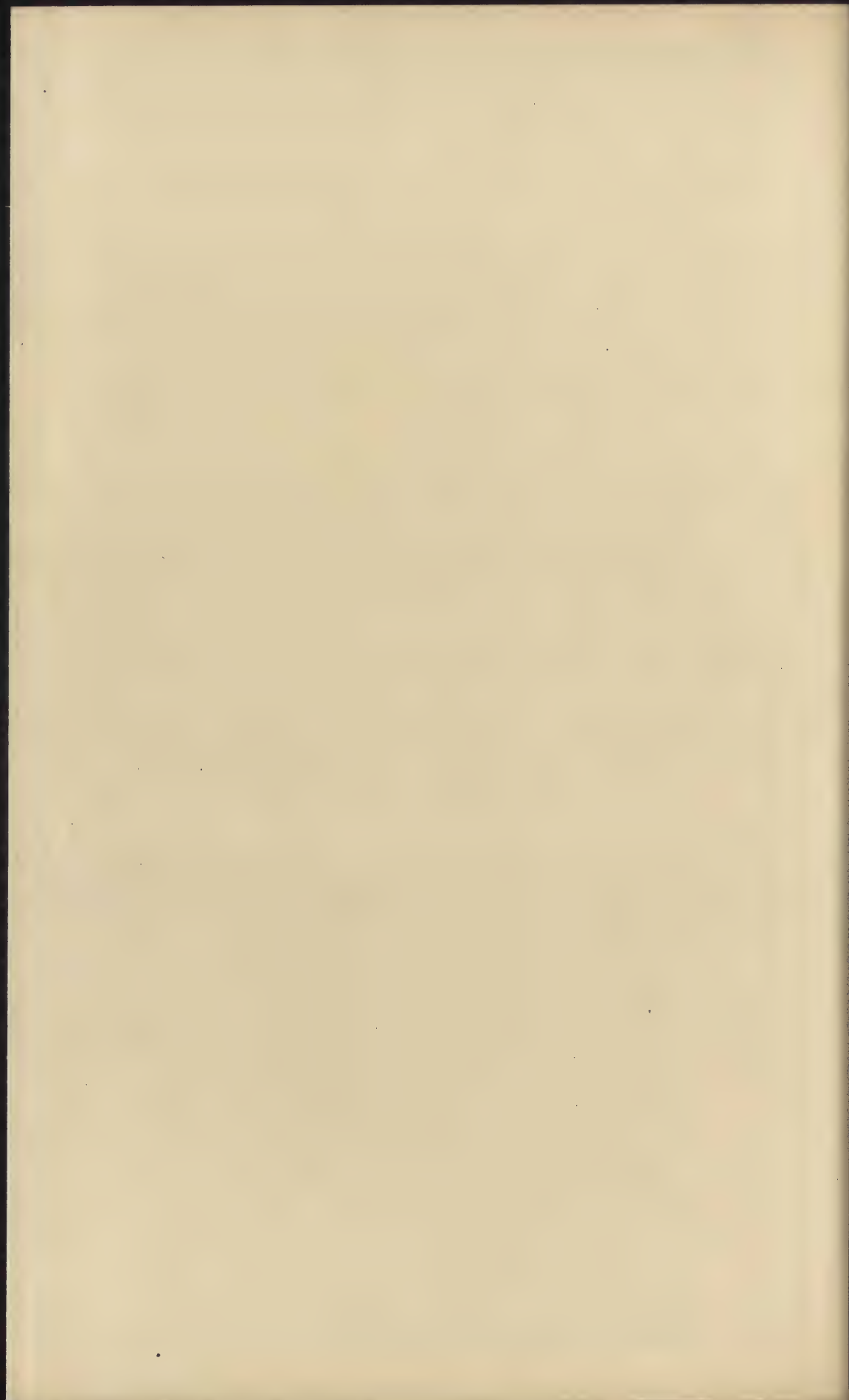
PLAN LAY-OUT OF COLUMN SHOWN
BELOW ON DETAIL SHEET NO. 7.

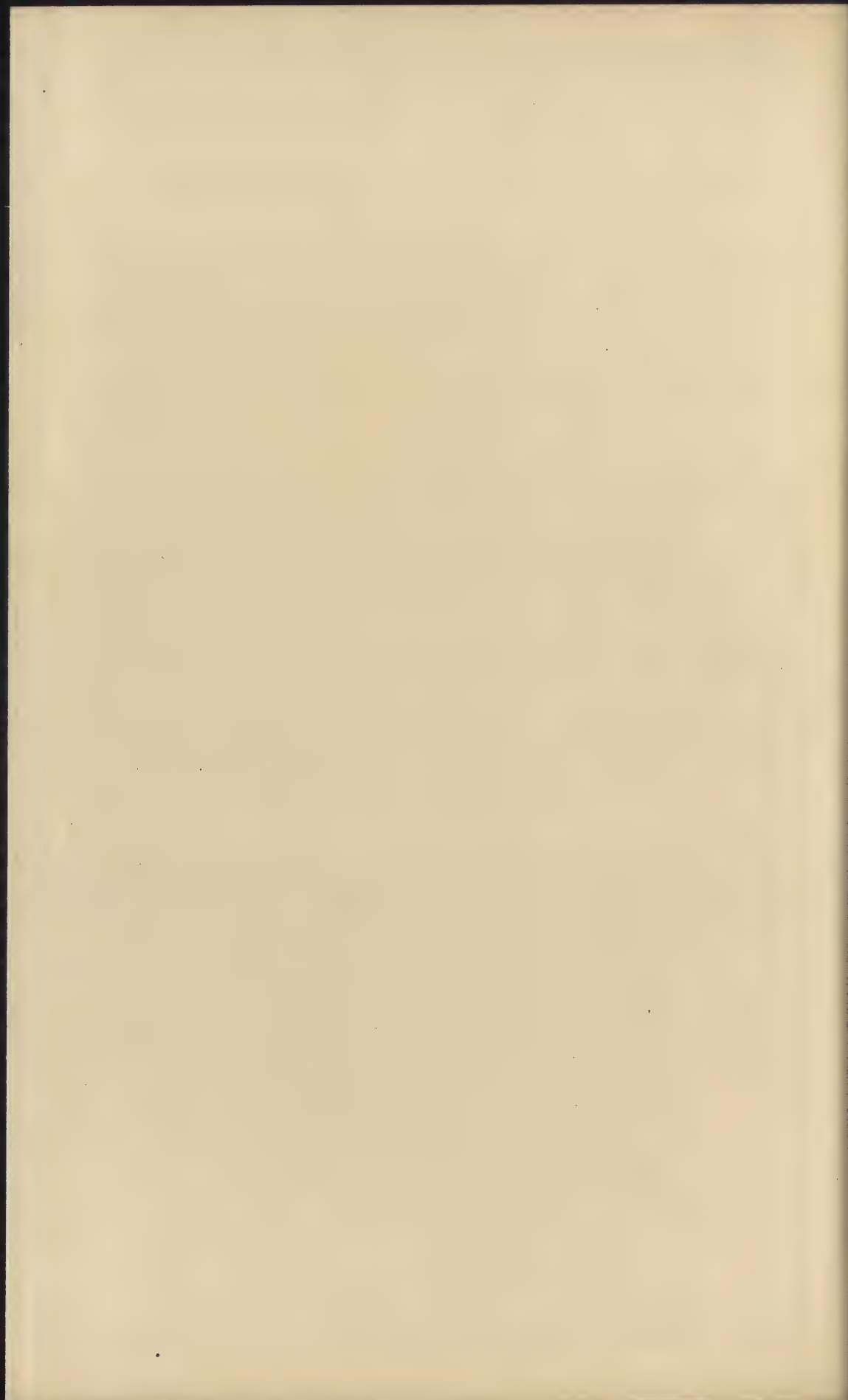


A CORNICE
WITH
MODILLIONS

FROM JULIEN MAUCLERC
A. D. 1600

ARCHITECTURAL RECORD
DETAIL PLATE No. 8







DETAIL AND INCISED LETTERING, THE LEADER-NEWS BUILDING, CLEVELAND, O.
Charles A. Platt, Architect.

THE LEADER-NEWS BUILDING

CLEVELAND, OHIO

CHARLES A. PLATT, Architect



THE LEADER-NEWS BUILDING of Cleveland, Ohio, deserves careful scrutiny as a very unusual example of the tall office-building. Its architect, Mr. Charles A. Platt, was offered an extraordinarily good opportunity of designing an exceptional building.

The great majority of sky-scrapers are erected under conditions which make practically impossible the working of any scale into the design. Usually their height is disproportion-

ately great compared to the amount of street frontage they occupy, so that the attempt to secure any comity in the treatment of the vertical as compared to the horizontal members is entirely futile. Under such conditions the only method of giving a specific architectural character to the design is to treat it frankly as a tower, and even this idea cannot be carried very far, because the large number of small openings render it impossible to make it look as sturdy and substantial as the eye needs for that kind of a structure. But even when the height of a skyscraper is not disproportionately great as compared to its length, it is usually disproportion-



A DETAIL OF BRONZE, THE LEADER-NEWS BUILDING, CLEVELAND, O.
Charles A. Platt, Architect.



THE LEADER-NEWS BUILDING, CLEVELAND, O.
CHARLES A. PLATT, ARCHITECT.



A DETAIL OF WROUGHT IRON, THE LEADER-NEWS BUILDING, CLEVELAND, O.
Charles A. Platt, Architect.

ately great as compared to the width of the street on which it faces. A façade which is two hundred feet long and two hundred feet high could be designed so as to bring the horizontal and vertical members into some friendliness of relation one to another; but if it is erected on a street only fifty or sixty feet wide, the architect gets no benefit from the spacious site. It is merely waste of time and money to work scale into a façade, which is only seen from angles, which kill the effect of carefully designed relation between the different parts of the building.

In the case of the Leader-News Building the architect was not, however, bound by conditions which compelled him to design a combination of two such antagonistic things as a tower and a screen: In the first place, the building was to occupy a site which was not too

small for its height. The height was limited by the local ordinances to 150 feet, or fourteen stories. The lot on which it was to be erected measured about 160 feet in one direction, by about 220 feet in another direction, so that no necessary disproportion existed between the two dimensions. Furthermore, the lot was situated on a corner, and one of the streets which crossed at this corner possessed the altogether unusual width of 120 feet. A building 150 feet high could, consequently, be seen from the other side of this street at an angle which preserved the value of any system of proportions which might be wrought into the design. The architect was offered the chance to build a skyscraper in which every other value did not have to be sacrificed to that of the vertical dimension. His skyscraper did not need merely to aspire and soar. It



NEWSPAPER OFFICE, THE LEADER-
NEWS BUILDING, CLEVELAND, O.
CHARLES A. PLATT, ARCHITECT.



NEWSPAPER OFFICE, THE LEADER-
NEWS BUILDING, CLEVELAND, O.
CHARLES A. PLATT, ARCHITECT.



DETAIL OF ELEVATOR DOORS IN BRONZE,
THE LEADER-NEWS BUILDING,
CLEVELAND, O.
Charles A. Platt, Architect.

could be kept down upon the street, and made to look more human and habitable.

It is some such effect which Mr. Platt has tried to get. The vertical dimension is not emphasized. The attempt has been made to keep the building down. The façade is divided into three parts by heavy string-courses of stone, and it is crowned by a cornice, which definitely discourages any tendency of such a tall structure to mount towards the sky. The stonework has, moreover, been designed for the purpose of giving emphasis to a system of minor vertical lines. The combination between the design of the stonework and that of windows converts the façade into a kind of decorated pattern, the whole effect of which is to prevent the eye from being captured by the height of the building. The ingenuity and care with which this general attempt to give scale to the façade has

been followed up are extraordinary and make the Leader-News Building for this reason a notable contribution to the art of designing tall office buildings. Of course, there were limits beyond which the attempt to get scale could not be carried. A properly proportioned entrance to a building of such dimensions, or a properly proportioned depth of wall would have been structurally, economically and architecturally impossible. The façade remains necessarily a screen, and does not attempt to look fallaciously deep, strong and solid. But it does attempt to be a



ELEVATOR DOOR, THE LEADER-NEWS BUILDING, CLEVELAND, O.
Charles A. Platt, Architect.



DETAIL OF FACADE, THE LEADER-
NEWS BUILDING, CLEVELAND, O.
CHARLES A. PLATT, ARCHITECT.



MAIN ENTRANCE LOBBY, THE LEADER-NEWS BUILDING, CLEVELAND, O.
Charles A. Platt, Architect.



PRIVATE OFFICE OF MR. HANNA, THE LEADER-NEWS BUILDING, CLEVELAND, O.
Charles A. Platt, Architect.



DETAIL OF CAPITAL, THE LEADER-NEWS BUILDING, CLEVELAND, O.
Charles A. Platt, Architect.

real screen, instead of a cross between a screen and a tower. It is built to enclose and define one side of a street, and on its surface is written a pattern which gives an agreeable appearance to the enclosure. There is no other office building in this country, unless it be the New York Life Building, in which the attempt to give scale to a façade of this kind has been so consistently, so intelligently and so successfully made.

Another respect in which the Leader-News Building is exceptional is the

great care with which the detail has been designed. In the case of the great majority of office buildings, very little time is spent in elaborating expensive special detail, partly because the owners are not willing to pay for it, and partly because very often it really is not worth while. Many millions of dollars have been spent in adding ornament to American office buildings, which was not only unnecessary, but disagreeable and frivolous. But the Leader-News Building, precisely because it offered the opportunity for a well-scaled design, also offered an opportunity for the discreet use of a certain amount of ornament. Ornamental detail could be made to count upon a façade which was a screen



PORTION OF EXTERIOR DETAIL, FROM ORIGINAL DRAWING, THE LEADER-NEWS BUILDING, CLEVELAND, O.
Charles A. Platt, Architect.



DETAIL, FROM ORIGINAL DRAWING, THE
LEADER-NEWS BUILDING, CLEVELAND, O.

Charles A. Platt, Architect.

for one side of a wide street rather than a tower.

As a matter of fact, Mr. Platt has made it count with great effect, not that he has used very much of it. It has been employed with the utmost economy, but wherever it appears it really is successful in diverting and interesting the eye of the observer. It has all been especially and elaborately designed for the purpose of occupying the space and doing the work which it was required to perform. That so much pains should be taken over the detail of a private house, a club, or even a hotel, would not be unusual; but it is unusual in the case even of well-designed office buildings, the architects of which are usually satisfied to put in stock decorative patterns. But in the

Leader-News Building the grilles, the elevator, doors, the very hardware was also specially designed in the office of the architect; and we believe that the majority of business men will agree with us in testifying that the money and the time were well spent. It is because so much care was given to every detail that the building has an air of distinction, which impresses even architecturally unsensitive people. Mr. Platt has succeeded in making an office building which is simple and business-like, while at the same time refined and well-mannered. He is to be congratulated on his success, and Cleveland is to be congratulated upon the possession of one of the handsomest and most distinguished office buildings in the country.

H. D. C.



DETAIL, FROM ORIGINAL DRAWING, THE
LEADER-NEWS BUILDING, CLEVELAND, O.

Charles A. Platt, Architect.



DETAIL OF ENTRANCE, THE LEADER-
NEWS BUILDING, CLEVELAND, O.
CHARLES A. PLATT, ARCHITECT.



From the Original Detail Drawing.

DETAIL (PROFILE) AND PHOTOGRAPH
OF KEYSTONE OVER ENTRANCE, THE
LEADER-NEWS BUILDING, CLEVELAND, O.
CHARLES A. PLATT, ARCHITECT..



From the Original Detail Drawing.

DETAIL (ELEVATION) OF KEYSTONE
OVER ENTRANCE, THE LEADER-
NEWS BUILDING, CLEVELAND, O.
CHARLES A. PLATT, ARCHITECT.



DETAIL OF ELEVATOR DOORS, THE
LEADER-NEWS BUILDING, CLEVELAND, O.
CHARLES A. PLATT, ARCHITECT.



DETAIL OF ELEVATOR DOORS, FROM
ORIGINAL DRAWING, THE LEADER-
NEWS BUILDING, CLEVELAND, O.
CHARLES A. PLATT, ARCHITECT.



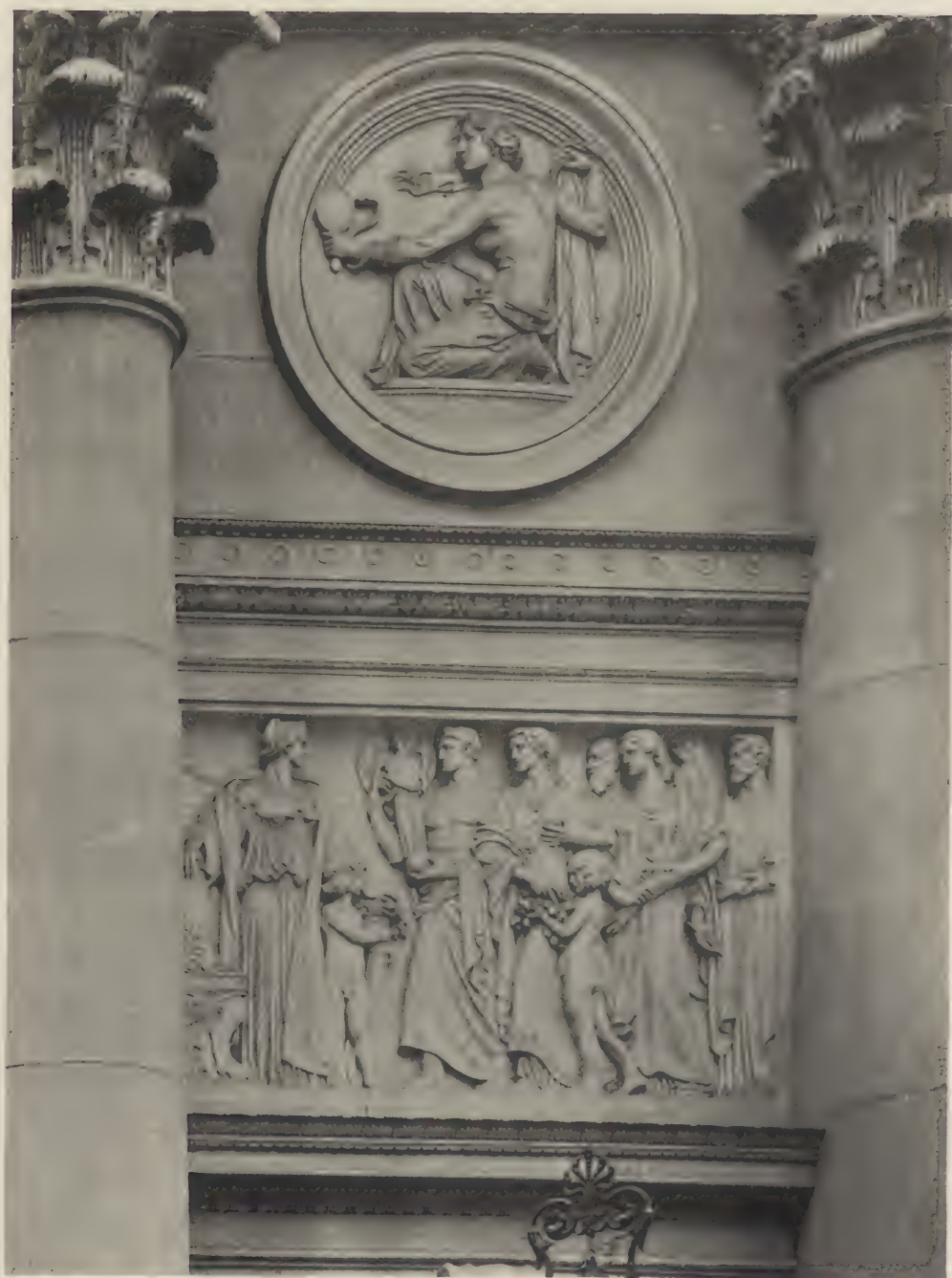
From the Original Detail Drawing.

DETAIL OF MAIN CORNICE, THE LEADER-
NEWS BUILDING, CLEVELAND, O.
CHARLES A. PLATT, ARCHITECT.



From the Original Detail Drawing.

DETAIL OF PORTION OF MAIN CORNICE, THE
LEADER-NEWS BUILDING, CLEVELAND, O.
CHARLES A. PLATT, ARCHITECT.



Underwood & Underwood, Photo.

DETAIL OF SCULPTURE, NEW YORK MUNICIPAL BUILDING.
A. A. WEINMAN, SCULPTOR.
MCKIM, MEAD AND WHITE, ARCHITECTS.



DECORATIVE PANEL FOR THE PENNSYLVANIA RAILROAD TERMINAL IN NEW YORK CITY.

A. A. Weinman, Sculptor.

McKim, Mead and White, Architects.

A SCULPTOR OF MONUMENTAL ARCHI- TECTURE

NOTES ON THE WORK OF
ADOLPH ALEXANDER WEINMAN
BY CHARLES H. DORR



THESE are, indeed, days of colossal achievement in the realm of architecture, which is monumental in scope and design—and typical of modern attainments, is the new Municipal Building which stands upon an irregular site near the approach to the Brooklyn Bridge, and in the zone of lofty “sky-scrapers” of lower Manhattan.*

The unusual and limited space of the site presented a problem to the architects of the giant structure, McKim, Mead and White, whose design was selected from a group of competitors.

New York's new Municipal Building, which represents an expenditure of \$10,-

000,000, is not only notable for its monumental proportions, but also for its remarkable adaptability to an irregular site upon which the structure rises nearly six hundred feet above the street level. The plan of the massive building is practically “U”-shaped, with the hollow of this curved letter forming an open court on one side, the end of the “U”, facing westward.

In designing this municipal building the architects have adapted a modification of Italian Renaissance style, and in its detail have been unusually fortunate in the ability of the sculptor selected.

So the new Municipal Building stands, a colossus of Manhattan, like a modern “Colossus of Rhodes,” and while the imposing civic structures of Brussels and other Continental cities may enter the lists of an architectural tournament for purposes of comparison, this

*The Architectural Record, February, 1913, pp. 97-122.

recent creation of the firm of McKim, Mead and White is bound to take its place as a notable example of twentieth century architecture.

The most casual might pause and wonder if he knew of the vast amount of steel, granite and other materials used in the construction of this building, for the figures are amazing and when considered give one an impressive idea of the magnitude of the latest municipal monument in New York.

It is estimated that 5,000,000 pieces of steel and 705,000 cubic feet of granite were used in the building, which has an office area for the various departments of city government of 648,000 square feet. The building is forty stories in height, including the towers, and the estimated weight of the entire structure is 377,320,000 pounds. There are thirty-

three elevators in the building of the overhead traction type, thirty-two of which run from the first to the twenty-fifth floor at a speed of six hundred feet per minute, fast enough to satisfy the demands of any New Yorker. From the twenty-fifth floor an additional elevator makes all landings until the final tower is reached. Chambers street extends through the centre of the structure and the court is closed on the western elevation by an open screen of columns, which serve the purpose of bringing together the north and south pavilions of the building. This colonnade rises to a height of fifty or sixty feet, and is decorated with sculptured figures. The colonnade continues around the building in the form of pilasters of the same height as the columns.

Above these columns and pilasters is



DISPOSITION OF DETAIL ON LOWER PORTION OF NEW YORK MUNICIPAL BUILDING.

A. A. Weinman, Sculptor.
McKim, Mead and White, Architects.



Underwood & Underwood, Photo.

DETAIL OF A SPANDRIL, NEW YORK MUNICIPAL
BUILDING. A. A. WEINMAN, SCULPTOR
McKIM, MEAD AND WHITE, ARCHITECTS



"ELECTIONS," A BAS-RELIEF DETAIL FROM
THE NEW YORK MUNICIPAL BUILDING.

A. A. Weinman, Sculptor.
McKim, Mead and White, Architects.

the main wall surface of the building, which is treated with vertical bands, with the colonnade echoed at the top of the structure by one of less height.

From the centre of the court on the eastern side rises the lofty tower, with its colonnaded "lantern," which has been given a municipal character; that is, one in consonance with the tower of City Hall, and also resembling in character other halls of civic government in this country and the municipalities of Europe.

The sculptural decorations embellishing this new municipal structure were recently completed by Adolph Alexander Weinman, an American sculptor, and with the exception of the symbolic figure of *Civic Fame*, all are bas reliefs carved in granite, from the quarries of North Carolina, and represent in various groups and designs the progress of municipal government from the days of Britain's rule, through Colonial times, and the wonderful city of today receiving homage of her people.

Poised high in the air and surmounting the tower of the municipal building, empress of all she surveys, the historic Hudson river, with its flotilla of ocean liners, under steam for foreign shores, and beyond the distant fields and marshes of Jersey, is the heroic figure, in copper, of *Civic Fame*, twenty feet in stature, and standing on a copper globe, which caps the top of the lofty edifice, the latest landmark of Manhattan.

In her left hand *Civic Fame* holds a mural crown composed of five parapets, symbolic of the five boroughs of the city, and surrounded at the base by a band of festive dolphins, symbolizing a sea-port town. The right arm of the figure supports a shield, which is carved with the seal of the city (the four arms of a windmill, two barrels and a beaver), while in her hand appears a spray of laurel. Her laurel wreath is the symbol of fame. From this altitude *Civic Fame* proclaims the prestige, pre-eminence and development of New York, destined perhaps, some day to be the metropolis of the world.

The veil of secrecy envelopes the model of the statue for *Civic Fame*, and

there has been considerable speculation as to her identity. It might be interesting to note, however, that she is a New York girl, and posed for the figure of *Victory* in "Sherman's March to the Sea," by Augustus Saint Gaudens, which stands at the Plaza entrance to Central Park in Fifth avenue.

A feature of interest in the new municipal structure is the great centre arch and colonnade over Chambers street, where most of the bas relief decorations in sculpture appear, including two spandrels, two medallions, two long panels, the figures of cherubs, and shields of the province.

The left spandril of the great arch reveals the figure of *Guidance*, supporting a rudder and tablet of the law, while the spandril at the right represents *Executive Power*, holding the fasces, symbolic of authority.

Over the north small arch is the figure of *Progress* in bas relief, holding as its symbols a torch and winged ball, while the medallion placed above the south small arch represents *Prudence* holding a mirror in her outstretched hand, symbols of reflection and wisdom, both carved in granite.

In the space above the south small arch is the long panel in bas relief representing *Civic Pride*, which shows the standing figure of the city receiving the tribute of her people. The companion panel to the North typifies *Civic Duty*, with another figure of the city partly resting upon volumes of the law, and accompanied by a cherub carrying the municipal coat of arms. In her right hand, before the group of citizens, she holds a scroll, symbolic of the laws she expects them to obey.

Within the architrave and between the massive columns are the figures of cherubs on either side supporting garlands and a tablet bearing the inscription in large, boldly incised, monumental letters: MANHATTAN.

Crowning the four columns of the arch are the decorative shields of the city and county, the two inner designs bearing the coat of arms of Great Britain and surmounted by the royal coronet, a reminder of the days when New York



"BOARD OF ESTIMATE AND APPORTIONMENT," A BAS-RELIEF DETAIL FROM THE NEW YORK MUNICIPAL BUILDING.

A. A. Weinman, Sculptor.
McKim, Mead and White, Architects.



Underwood & Underwood, Photo.

DETAIL OF SCULPTURE, NEW YORK MUNICIPAL BUILDING.
A. A. WEINMAN, SCULPTOR.
McKIM, MEAD AND WHITE, ARCHITECTS.



DETAIL OF SCULPTURE, NEW YORK MUNICIPAL BUILDING.
A. A. WEINMAN, SCULPTOR.
McKIM, MEAD AND WHITE, ARCHITECTS.



"CIVIL SERVICE," A BAS-RELIEF DETAIL FROM
THE NEW YORK MUNICIPAL BUILDING.

A. A. Weinman, Sculptor.
McKim, Mead and White, Architects.

was an English colony, and the colors of King George fluttered in the breeze over the island of Manhattan.

The classic figures in the panels beside the windows of the second story portray some of the more important branches of municipal government to be located within this notable building. There are twelve of these figures in number, representing various subjects of civic government, the Board of Estimate and Apportionment, Civil Service, Building Inspection, Board of Elections, Water Supply, Correction, Accounts, Records, Licenses, Comptroller, Sheriff, Public Service, all linked with the municipality of New York, and treated in classic spirit and symbolically by the sculptor.

Frank Alvah Parsons once said that tapestries are logical architectural decorations for the reason their lines are vertical and horizontal, which, fundamentally speaking, are the lines of architecture.

In his severe treatment of the robes draping the classic figures, which embellish the municipal building Mr. Weinman may be said to have achieved a remarkably successful architectural result for the same reason—illustrated notably in the panels, *Elections* and *Civil Service*, typical examples in the second story series. And in all the figures there is an admirable conformity with the restricted space to be filled.

The sculptural decorations designed for the imposing arch of the structure are intended to typify the spirit of the municipal building, aptly interpreted by the symbolic figure of *Progress*, with its vigorous modelling, while the window panels merely represent the various offices of city administration.

Quite as much attention has been given by the sculptor to his portrayal of character manifested in the various figures as to the creating of an effective and thoroughly architectural design and his accuracy in symbolic detail.

A pupil of the late Augustus Saint-Gaudens, the eminent sculptor who left the impress of his genius in all that he touched on American art, the name of Adolph Alexander Weinman has been

affiliated with the decorations of numerous public and private buildings of the metropolis and the capitals of other states.

As a student he worked in the atelier of Philip Martigny, and also in the studio of Olin L. Warner, another American sculptor. He gained additional knowledge and experience in the studios of Daniel Chester French and Charles Henry Niehaus, and after fourteen years of apprenticeship in sketching, modelling, and study, he established his own studio over on the west side in the Chelsea quarter of Mannattan, where many studies in bas relief, medals, portrait busts, and photographs of decorative and colossal figures, reveal a wide range of achievement, and indicate the sculptor's versatility.

Here are models of the statue of Abraham Lincoln, which was exhibited at the winter display of the Architectural League, and a more intimate portrait bust of Charles Henry Niehaus, a good likeness of this American sculptor, and facile in modelling.

Although he has essayed various types of the plastic art, Adolph Weinman is most distinguished as a monumental sculptor, and he has won wide recognition for his designs of heroic statues, colossal figures, and decorative bas-reliefs carved for the pediments of stately capitals and private buildings. A distinctive example of his art, and notable in arrangement, balance and ensemble effect is the pediment group designed for the South Senate wing of the new Wisconsin State Capital, designed by the architects, George B. Post and Sons, of New York.

This symbolical group by Weinman was designed to portray the virtues of the Wisconsin Senate, and is characteristic of a classic type of decorative sculpture introduced by the sculptor, who seems, in most examples of his sculpture to have grasped the right relation between his art and that of architecture. The central figure in the group typifies *Wisdom*, and at her right appear *Equity*, *Executive Power*, *Meditation*, *Guidance* and *Prudence*, while on the left stand *Rectitude*, *Diplomacy*, *Eloquence*, *Justice*



"BUILDING INSPECTION," A BAS-RELIEF
DETAIL FROM THE NEW YORK
MUNICIPAL BUILDING.
A. A. Weinman, Sculptor.
McKim, Mead and White, Architects.



DECORATIVE PANEL FOR THE PENNSYLVANIA RAILROAD TERMINAL, NEW YORK CITY.

A. A. Weinman, Sculptor.

McKim, Mead and White, Architects.

and *Progress*, extolling the virtues of Wisconsin.

The great monumental clock of the Pennsylvania railroad terminal in New York City by McKim, Mead and White, is another of the works of A. A. Weinman. There, above the entrance to the building, a group of robust figures, *Day* and *Night*, form a well-scaled sculptural relief for the severity of the massive granite façade.

The figure of *Day* appears with a cluster of sun flowers in homage to the orb of day, and *Night*, robed in flowing mantle clasps for a floral symbol, poppies gathered from some far away field, beneath the stars. These figures are installed over each entrance of the Pennsylvania station, and among other decorative panels are the winged wheel of *Speed, Progress, and Commerce*, typifying industry, and an ornamental eagle, surrounded by a large wreath, and sculptural details.

Of the Italian Renaissance style of architecture, the library building, a part of the late J. Pierpont Morgan's town residence, is conceded to be one of the most gracefully and perfectly designed

buildings in America (McKim, Mead and White, architects). This building, with its exquisitely proportioned and detailed façade, afforded a stimulating theme for the decorative sculptor. In collaboration with the architects, Mr. Weinman was commissioned to execute the two panels for the façade of the Morgan library, which symbolize *Music Inspiring the Allied Arts*, and *Truth Enlightening the Sciences*. These are graceful figures modelled by the sculptor, and accompanying "*Music*," are noted *Architecture, Sculpture, Painting* and the *Textiles*, with symbols of each art, while in the panel of *Truth* and the *Sciences* appear *Literature, Philosophy, History*, of studious mien, *Oratory*, and *Astronomy* in tune with the stars and "music of the spheres."

In contrast to this symbolic sculpture in bas-relief embellishing the library of America's foremost connoisseur of fine arts and literature, is the heroic military statue in bronze, of Lieutenant Colonel William F. Vilas, U. S. A., executed by Mr. Weinman, and placed in the National Military Park at Vicksburg, Mississippi, as a memorial to a gallant soldier of the

war of the Rebellion. There is a note of historic interest revealed in the site chosen for this monument erected to the memory of Colonel Vilas, for according to military chronicles, the Union soldier was in command of a detachment of the Northern forces in Vicksburg at one time, and from a vantage point overlooking the Confederate encampment.

The guns mounted on pedestals and flanking the approach to the monument, designed by A. R. Ross, are actual relics of the war, and were in operation during the siege of Vicksburg. Colonel Vilas is portrayed in full military uniform, and

Another figure of heroic stature represents the state of Maryland bidding farewell to her son as he departs for the soldier's life, while the third figure, winged and helmeted, typifying *Heroic Courage*, is observed urging on a young man to deeds of glory, and breaking off a bough of oak, symbol of military fame.

Among the presidents of the United States Abraham Lincoln has probably appealed as a subject to more sculptors than any other chief executive. Portrait busts of Lincoln, heroic figures, equestrian statues, and monuments to his memory at his former home, Springfield,



"SILENCE AND MEMORY," PANEL ABOVE ENTRANCE TO WILLIAM B. LEEDS MAUSOLEUM, WOODLAWN, N. Y.
A. A. Weinman, Sculptor.

with his left hand clasping a sheathed sword.

A departure from the conventional design is the Union Soldier's and Sailor's monument erected in Druid Hill Park, Baltimore, Md., and commemorating the valorous deeds of the sons of Maryland in the dramatic combats between the armies of the North and South, a commission awarded the sculptor in competition with other artists. The dominant figure in a group of three portrays a Maryland soldier responding to the "call of arms," and departing from the routine of civic occupations for the field of war.

Illinois, and in Lincoln Park, Chicago, the latter figure by St. Gaudens, appear throughout the country. Weinman has joined the band of artists, who revere the name of Lincoln, and is represented by two statues of that great president whose motto was "With malice toward none; with charity for all"—one a seated figure at Hodgenville, Kentucky, his birthplace, and the other a standing portrait, of monumental design, at the state capital of Frankfort, Kentucky.

Of heroic type and erected on the Washington Boulevard of Detroit, Michigan, is a monument of General



"CIVIC FAME," AN HEROIC FIGURE CROWN-
ING THE CUPOLA OF THE NEW YORK
MUNICIPAL BUILDING.
A. A. Weinman, Architect.

Alexander Macomb, U. S. A., a campaigner of the war of 1812, the statue by Adolph A. Weinman, and the architectural setting designed by Albert R. Ross.

One of the decorative features of the new Masonic Temple in San Francisco, California (Bliss and Faville, architects), is a monumental statue in marble of King Solomon, designed by Weinman, and placed in a niche attached to a corner of the structure at the height of the third story, which is in harmony with the general character of the building. Above

the portals of the temple is a tympanum showing a sculptural decoration in bas-relief of a group of figures, representing *Truth, Fortitude and Charity*, carved in white Alaskan marble.

This lunette was displayed by the sculptor at the annual exhibition of the Architectural League, and is a comparatively recent commission.

As an exponent of the plastic art, and for numerous meritorious examples of his skill ranging from symbolic plaques and medals, the sculptor has been conspicuously honored both at home and abroad.

For his group of Indian figures entitled, "*The Destiny of the Red Man*," which was exhibited at the St. Louis Exposition, he received a silver medal, and for a series of plaques and medals displayed at Brussels, he was also awarded a silver medal.

The Architectural League, which includes in its membership the foremost architects, sculptors and mural painters of the country added to the laurels of the sculptor the League's gold medal of honor (Sculpture, 1913), awarded for the general high character of his work, which included this year, the heroic figure of Colonel William F. Vilas, and his statue of Abraham Lincoln, designed for the rotunda of the State Capitol at Frankfort, Kentucky.

Aside from winning trophies at the expositions of his native land and in Europe, Weinman has executed several medals of note for various societies devoted to the arts and literature.

He designed the gold medal of honor for the American Institute of Architects, and also one for the National Institute of Arts and Letters, and a medal of award for the St. Louis International Exposition. In collaboration with Augustus Saint Gaudens, he designed the Inaugural medal for Former President Theodore Roosevelt, which was presented at the Inauguration ceremonies at Washington in 1905. The obverse of this medal shows the head of Roosevelt, and bears his motto, "*Aequum Quique*" ("*A Square Deal*"), and on the reverse side appears the emblematic American eagle.

Another bronze medal by the sculptor



THE MADISON SQUARE PRESBYTERIAN CHURCH, NEW YORK CITY.

A. A. Weinman, Sculptor of Pediment Figures.
McKim, Mead and White, Architects.

was designed for the United States Government as an award for conspicuous heroism in saving life on American railroads. It is symbolic of courage, and shows the stalwart figure of a hero bearing a flaming torch of safety, a beacon light to the traveller.

One of the last creations of Stanford White, of McKim, Mead and White, was the architectural design for the Presbyterian church in Madison Square, which stands unique between the altitudinous tower of the Metropolitan Life Building, now a landmark of Manhattan, and

the earlier Madison Square Garden structure, surmounted by the graceful figure of Diana, with bow in hand, a reminder of the art of Augustus Saint Gaudens.

The colored faience of the pediment embellishing the Madison Square Presbyterian Church is another example of sculptural decoration—and a conspicuously successful one—from the hand of Weinman.

The sculptor at present is engaged upon an interesting commission, which includes four acroteria to be placed at

the corners of the roof of the new Temple of the Scottish Rite, Washington, D. C., designed by John Russell Pope, of New York. These acroteria will represent a double headed eagle mounted on a sword and surmounted by a crown and triangular keystone, emblematic of the Masonic order.

Modelled after the manner of the ancient Sphinxes of the Egyptians and with lion-like body merging into a human head, with slight variations of head dress, two ornamental figures will flank the monumental stairway at the entrance to the imposing Temple of the Scottish Rite.

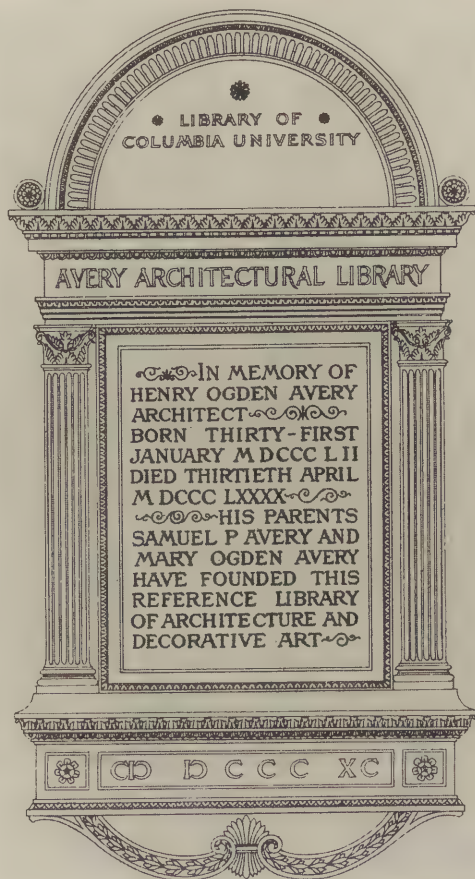
In considering the work of a painter,

a sculptor, an architect—what is the most valuable sort of constructive criticism? Perhaps it is to determine the nature and value of his contribution to the art of his country and time. Such an estimate, from its nature, must be collective, and in making such an estimate of the work of Adolph A. Weinman it will be conceded that in its character Weinman has set and maintained a conspicuously high standard of dignity and architectural fitness, resulting from an evident earnestness of intent and ability in execution. And this character must have its own face value in any contemporary or future record of the arts allied to architecture in this country.



"PROGRESS," FROM A MODEL FOR A MEDALLION ON THE
NEW YORK MUNICIPAL BUILDING.

A. A. Weinman, Sculptor.
McKim, Mead and White, Architects.



THE BOOK-PLATE DESIGNED BY RUSSEL STURGIS

THE AVERY LIBRARY

BY C. MATLACK PRICE &...
GEORGE LELAND HYNTER.



THE ENTRANCE PORTICO, THE AVERY ARCHITECTURAL
LIBRARY AT COLUMBIA UNIVERSITY, NEW YORK CITY.
McKIM, MEAD AND WHITE, ARCHITECTS.



THE AVERY LIBRARY AT COLUMBIA UNIVERSITY.
From the Original Etching by DeWitt H. Fessenden.
McKim, Mead and White, Architects.



THE DESIGN OF THE AVERY ARCHITECTURAL LIBRARY

McKIM, MEAD & WHITE, ARCHITECTS

BY C. MATLACK PRICE



THE NICETY of an architectural problem is sometimes reflected in the nicety of its solution—and this may conscientiously be said of the new building for the Avery Architectural Library, by McKim, Mead and White, recently added to the group of buildings at Columbia University.

In this building it was obviously required not only to adequately and efficiently house an important collection of

books on a special subject, but to achieve as well an exemplar of architecture which should be at once a monument in itself, a criterion on the profession at large and an inspiration to a local group of students in particular.

To design a building for an architectural library would seem to partake a little of the nature of going on the stage before an audience composed of professional actors—it is a performance to a critical audience, and the very books in the shelves—Palladio, Alberti, Vitruvius and the others would rest uneasily in an ill-designed repository. The building planned to house the most important collection of architectural books in the coun-



DETAIL OF ENTRANCE PORTICO, THE AVERY
ARCHITECTURAL LIBRARY.

McKim, Mead and White, Architects.

try must be itself a text-book, as it were, of design and detail—must not fall short in any possible particular of the highest abstract ideals of architecture as a fine art.

Executed by a firm so long conspicuous for its adherence to these ideals, it is gratifying rather than surprising that the new building for the Avery Architectural Library should so quietly and gracefully fulfil its requirements. That the building is not blatantly and conspicuously "Architectural" is one of its best recommendations. It is another illustration of the superiority of "manner" over "mannerism" in architecture in that it takes its place among the surrounding buildings with an almost human ease and *savoir faire*.

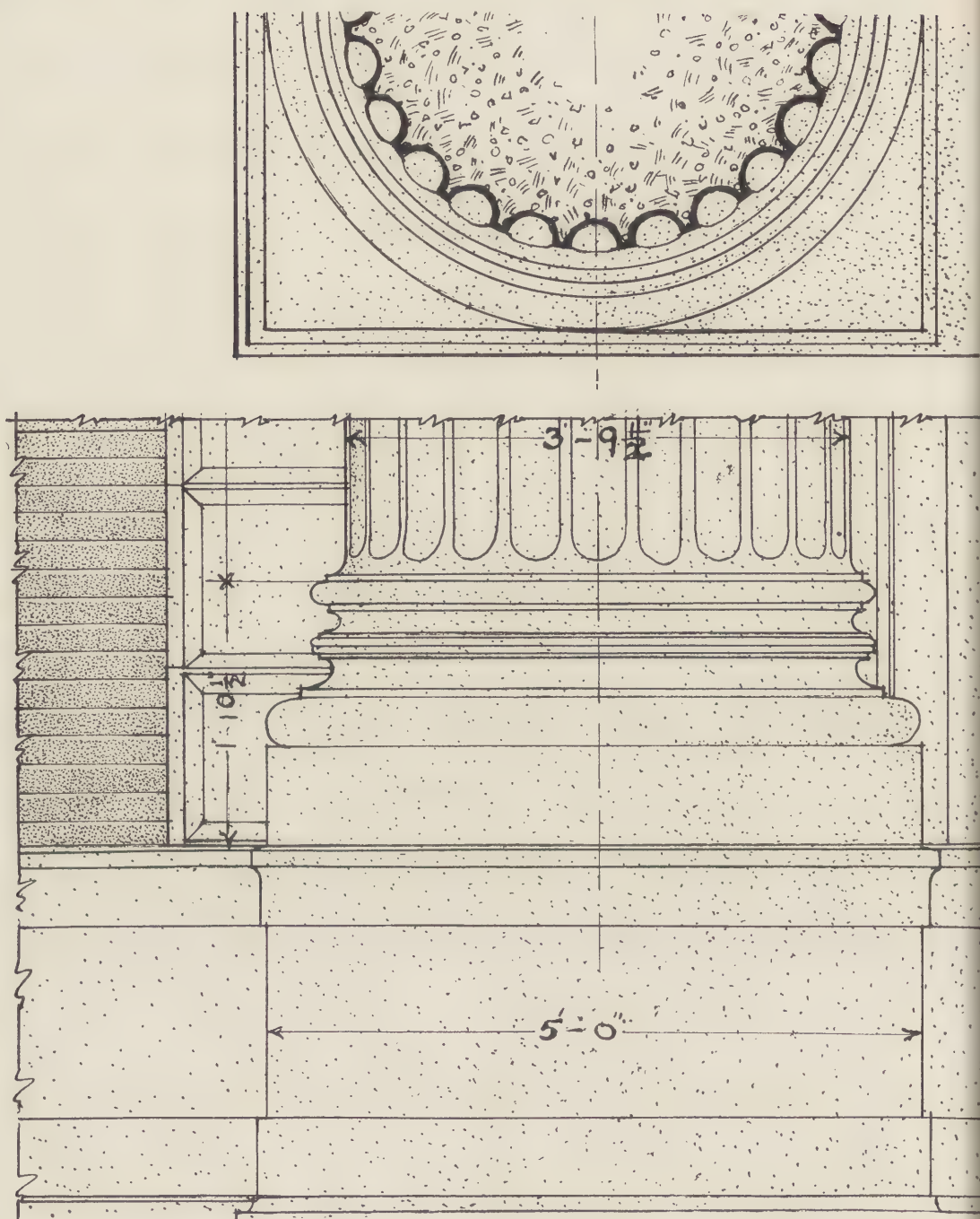
The problem is not unlike—in fact it is nearly identical with—the problem presenting itself in the design of Nelson Robinson Hall, the building for the Architectural Department of Harvard University. There, too, it was required to achieve a criterion and an inspiration, in terms essentially architectural, and there, too, the solution was in the hands of McKim, Mead and White. Certainly it could not be regarded either as wise or auspicious to launch the architectural student in his exacting career from a building which he might discover, either during his study or through subsequent enlightenment, to be guilty of architectural anachronism. An illiterate provincial would not be regarded as a wise selection to fill the post of a Professor of English.

An architectural colloquialism, or even worse, an architectural blunder, might pass uncensored or unnoticed in any other building, but where the ideals of the student are in a formative state, where he is beginning to observe, to note, to found the bases of his subsequent architectural convictions—the responsibility is tremendous.

And these foregoing remarks are not mere generalities—an appreciation of their significance must be had before it is possible to make an intelligent study of the building which forms the subject of this note. Let it be remembered that the architect had a broader mission



THE AVERY ARCHITECTURAL LIBRARY AT
COLUMBIA UNIVERSITY, NEW YORK CITY.
MCKIM, MEAD AND WHITE, ARCHITECTS.



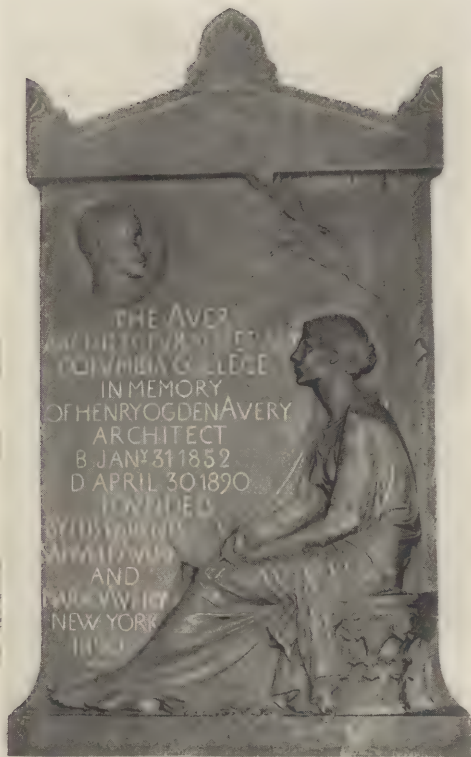
Scale, $\frac{3}{4}'' = 1$ foot.

DETAIL OF BASE AND HALF COLUMN PLAN, POR-
TICO OF THE AVERY ARCHITECTURAL LIBRARY
AT COLUMBIA UNIVERSITY, NEW YORK CITY.
McKIM, MEAD AND WHITE, ARCHITECTS.



le, $\frac{3}{4}$ " = 1 foot.

DETAIL OF CAPITAL AND ENTABLATURE OF POR-
TICO OF THE AVERY ARCHITECTURAL LIBRARY
AT COLUMBIA UNIVERSITY, NEW YORK CITY.
MCKIM, MEAD AND WHITE, ARCHITECTS.



THE AVERY MEMORIAL TABLET.
J. C. Chaplain, Sculptor. Paris, 1893.

here than to exploit any personal whims in design—his responsibility is to numberless successive students, year after year. Such a building can express no “fad”—it must be as intrinsically good from bases of sound architectural ethics in design fifty or a hundred years from now as it is today.

In its general character it was designed for conformity with other buildings in the Columbia group—a rectangular mass detailed in brick and cut stone. In its more particular character it was designed to express, perhaps, a degree more of architectural finesse than some of the other buildings.

An almost severe Ionic portico dominates the façade, yet the proportions of this are so fine that a casual glance might dismiss it simply as “an Ionic portico.” On examination there will be found to be the utmost nicety of detail from base to entablature. Analysis is futile—the

result achieved here is simply the result of a careful study of profile and projection. It will be noted that the corner panel in the frieze, which was first detailed with an Italian Renaissance motive, was changed to incorporate the crown—the old symbol which reminds those who notice it that Columbia University was “King’s College” before the American Colonies became a nation.

Apart from the excellent alignment of the other members of the façade, and the reserved use of detail, perhaps one of the most interesting studies is the simple pilaster used in the uppermost story. The projection is slight, and the capital is formed of nothing more elaborate than ten closely spaced flutes. Every slightest projection and sinkage would seem to have been given the most accurate study.

The interior is to be considered from three aspects—that of plan, of general effect and of detail. Library plans may be divided, broadly into two kinds—the stack room plan and the alcove plan. Of these the second was adopted for the Avery Library.

The reason for this selection of plan was, in a measure, two-fold. From the point of view of design it was absolutely required to treat all sides of the building with similar fenestration, which would have been impossible with the tall slit-like windows required to light a stack-room. From the point of view of the utility of the library it is obvious that greater use may be made of volumes which can be taken down from the shelves by the student himself. To call for a specific book by card number demands an intimate previous knowledge of its contents, whereas the alcove plan allows the student to skim through a dozen or more volumes in a short time until he finds what he is looking for. It further enables the student to form a broader acquaintance with the books in the collection—and this is a priceless acquisition, for it has been well said that success depends to an amazing extent on a knowledge of where to find certain things directly. The alcoves are arranged to contain certain classifications of subject, and each being furnished with a long, well-lighted table, forms a quiet

and sequestered compartment for work with tracing paper or note-book.

Above the library proper the University Department of Architecture occupies three floors of ample and well-lighted lecture and draughting rooms, which, with the perfect accessibility of the storehouse of material below must eventually develop into one of the world's most important and far-reaching architectural schools.

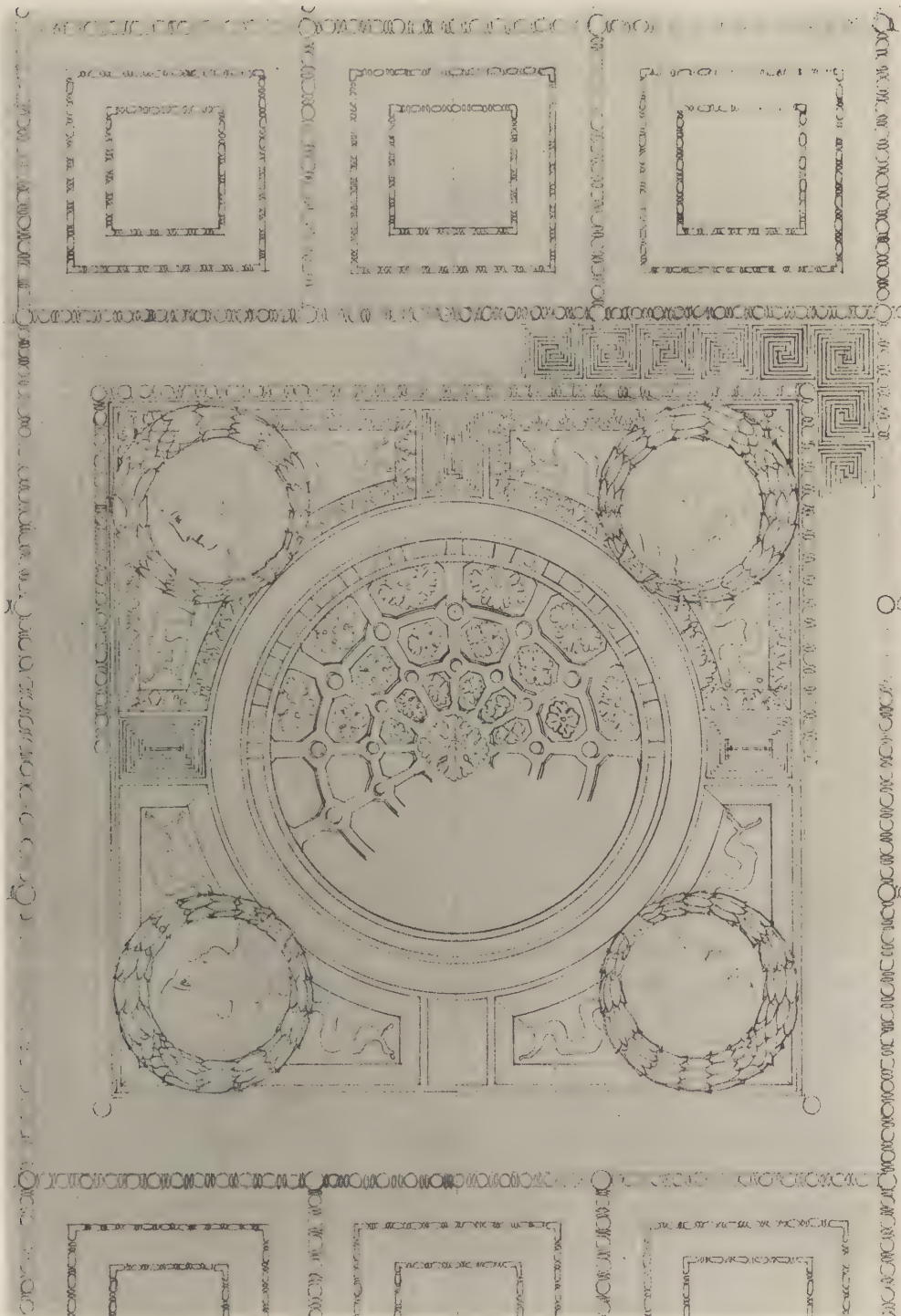
Perhaps the most interesting single detail in the library itself is the square capital which appears in the interior shown on page 544, for it illustrates a distinctly interesting point. Without a sense of adaptability the classics are as a "door to which there is no key"—their amazing value lies in their latent suggestion. Thus the square capital from the temple Athena Polias, at Priene in Asia Minor, has probably appealed to a good many generations of architects as an interesting archaeological curiosity—and perhaps nothing more. Here, however, its use is wonderfully apt and felicitous—the very fact that it is a comparatively well-known archaeological example makes it properly suitable for a building which partakes of a little of the quality of a museum. From the point of view of design, it is hard to visualize any other motif that could be as intrinsically appropriate and graceful, or one of more refreshingly unique latter-day adaptation. It is most important of all to note that it has not been slavishly *copied*, line for line, but has been refined in certain particulars, as compared to the original illustrated, the reproductions being taken from a book of powerful architectural engravings in the Avery collection. The griffin was discarded for a more purely conventional decoration of anthemion motif, and the whole shows with peculiar vividness just how the classics may inspire and aid without hampering individual requirements or individual expression. The beautiful capital of the entrance portico is also developed from an order among the ruins at Priene.

Among other details the eye cannot fail to be rested by the severe but delicate proportioning of the doors to the stairs

leading to the alcove galleries—a finesse of detailing which must be seen in the actual execution to appreciate. No drawing, and certainly no photograph can transcribe the nicety in projection and profile in this seemingly simple bit of detail. And for an architectural library what could be a motif more deftly or happily introduced than the diminutive composite capital in the supports of the bronze gallery rails?

An interesting note in the ceiling—which, by the way, is coffered and decorated just enough to show studious attention, but not so much as to seem in any way ornate—is the introduction of portrait medallions of twelve famous architects of history. These appear in three groups of four each in the main divisions of the ceiling, and were, for the most part, studiously modelled from contemporary medals and other documents. The names may at some future time be inscribed beneath each medallion, the architects represented being: Strozzi, Brunelleschi, San Gallo, Lorenzo the Magnificent, Malatesta, Urbino, Alberti, Michaelangelo, Bramante, Julius II, Peruzzi and Ludvico il Moro Sforza—who look quietly down upon the well-filled shelves not only of those books which they themselves contributed to the development of the master-art of architecture, but upon those of their successors in many lands, and upon the heads of the students of today, coming to study, to learn and to form the foundations of an architecture whose highest development may, perhaps, lie as far in the future as the Italian Renaissance lies in the past. The old architects are symbols, perhaps, but they are also silent judges and patient masters whose great works and past triumphs lie ever ready to the hand of him who is fortunate in the possession of the wit and taste to turn to them for inspiration and guidance.

Nor should there be forgotten the enormous debt which practicing architects and students must owe in perpetuity for the splendid generosity and the painstaking provisions by the Averys which make the library bearing their name a legacy to the profession for all time.



From a pencil drawing.

DETAIL OF COFFERED PLASTER CEILING, SHOW-
ING ONE GROUP OF FOUR PORTRAIT MEDAL-
LIONS, THE AVERY ARCHITECTURAL LIBRARY.
McKIM, MEAD AND WHITE, ARCHITECTS.

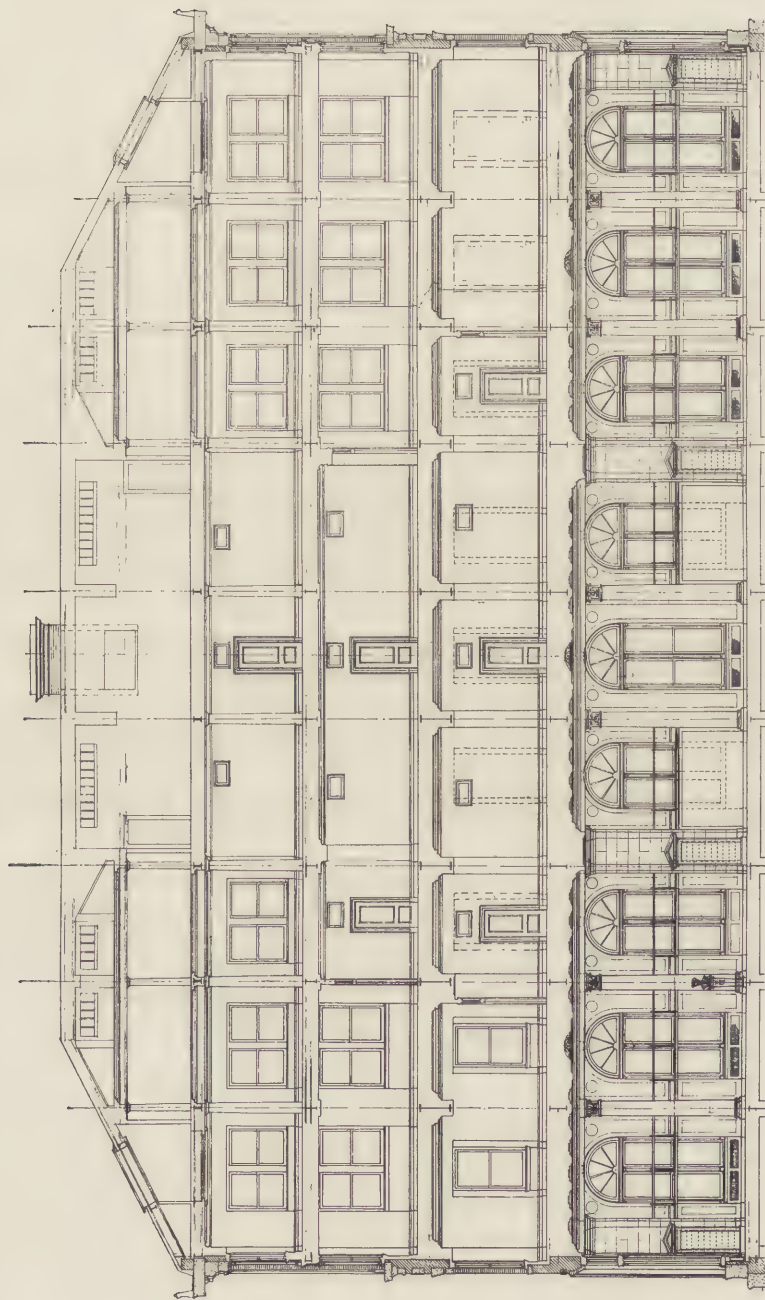


INTERIOR, LOOKING SOUTH, THE AVERY ARCHITECTURAL
LIBRARY, COLUMBIA UNIVERSITY, NEW YORK CITY.
McKIM, MEAD AND WHITE, ARCHITECTS.

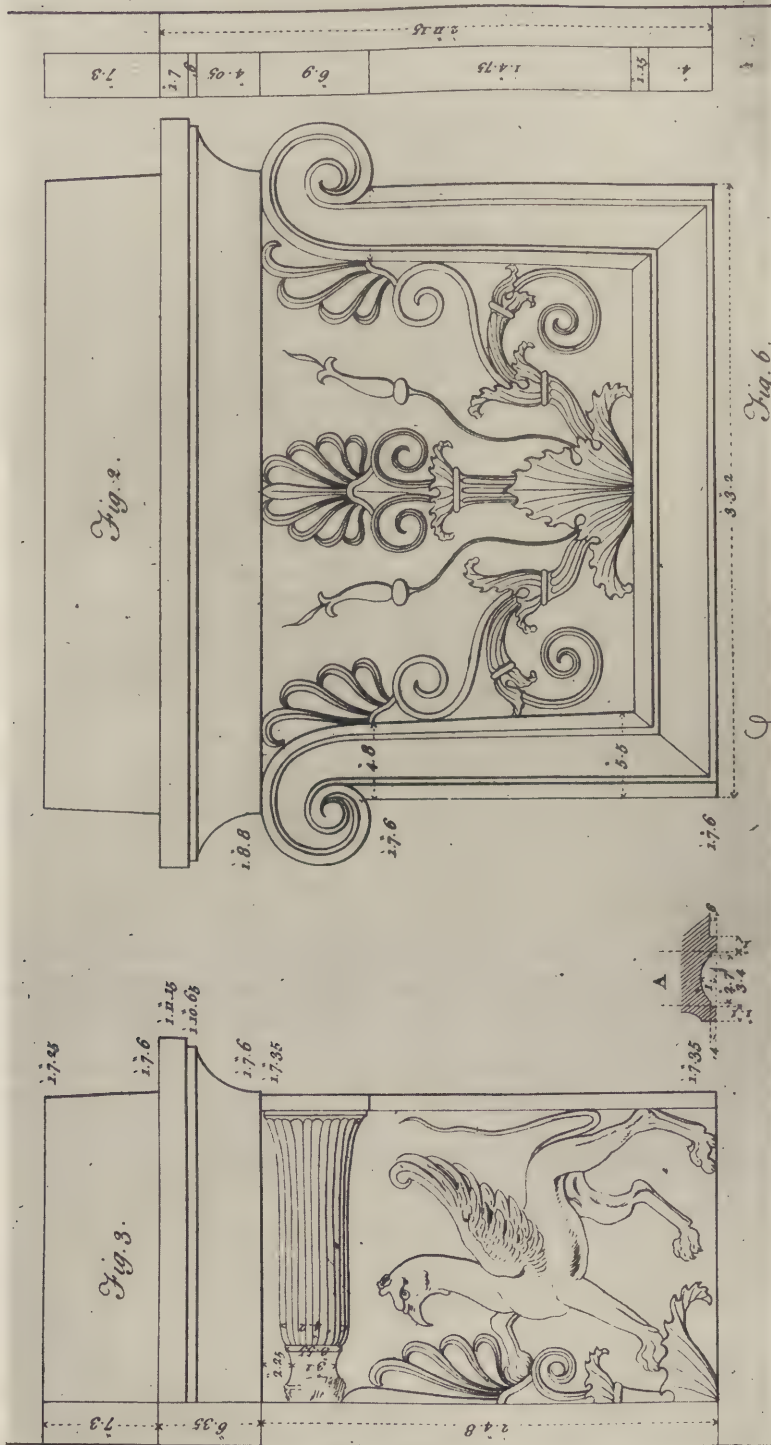


DETAIL OF THE ANTE-CAPITAL FROM THE TEMPLE
ATHENA POLIAS IN ASIA MINOR, FROM WHICH
THE CAPITAL ON PAGE 544 WAS DEVELOPED.

From an Engraving in "The Ionian Antiquities," published by the
Society of Dilettanti, London, 1779. The Avery Library.



SECTION THROUGH CENTRAL LONG AXIS (SEE PLAN ON PAGE 543),
THE AVERY ARCHITECTURAL LIBRARY AT COLUMBIA UNIVERSITY,
NEW YORK CITY. McKIM, MEAD AND WHITE, ARCHITECTS.



From an Engraving in "The Ionian Antiquities," published by the Society of Dilettanti, London, 1779. The Avery Library.

LINE DETAIL OF THE ANTE-CAPITAL FROM THE TEMPLE ATHENA POLIAS IN ASIA MINOR, FROM WHICH THE CAPITAL ON PAGE 544 WAS DEVELOPED.



ENTRANCE DETAIL, THE AVERY ARCHITECTURAL
LIBRARY, COLUMBIA UNIVERSITY, NEW YORK CITY.
McKIM, MEAD AND WHITE, ARCHITECTS.



DETAIL OF A PORTION OF ENTRANCE, THE AVERY ARCHITECTURAL LIBRARY, COLUMBIA UNIVERSITY, NEW YORK CITY.
 MCKIM, MEAD AND WHITE, ARCHITECTS.



THE FRONTISPIECE
FROM VIGNOLA.



ANCIENT BAS-RELIEF AND VASES, FROM PIRANESI.



NOTES OF THE COLLECTION OF THE AVERY ARCHITECTURAL LIBRARY

BY GEORGE LELAND HUNTER



AMONG architectural libraries, the Avery library of Columbia University in New York City stands first in number of volumes (21,486) and in their availability for consultation, which would seem to entitle it to the premiership among the architectural libraries of the world, for after all is said and done, the fact remains that the value of an architectural library to the art and profession of architecture depends upon

the comprehensiveness of the collection and upon the efficiency of the organization for making the books usable. Without analytical card catalogues and expert attendants, the wealth of resources would be largely wasted, and without the wealth of resources the machinery would stand idle. It is the combination that makes the Avery library unique.

In one field only, that of original editions of the classics of architecture—Vitruvius, Vignola, Palladio, Serlio, Du Cerceau, the Grand Marot, the Petit Marot, Mariette, the Grand Blondel, the Petit Blondel, Lepautre, Bérain, Sandrart, Piranesi, Adam—is the Avery libra-



"VAUX-LE-VICOMTE," FROM THE PETIT BLONDEL.

ry surpassed by the library of the Royal Institute of British Architects in London. The Institute Library has fifty-six editions and translations of Vitruvius, while the Avery has only thirty-nine. And the Grand Marot and the Petit Marot, the Avery has not at all. But among the editions of Vitruvius that it has is the *editio princeps*, that of Sulpitius published in Rome in 1486, without title page, starting with a page of introduction addressed to the reader,

IO. SVLPITIVS. LECTORI.
SALVTEM

followed by three pages and a half of index, and two pages and a half of dedication to Cardinal Raphael Riario, before finally begins the preface of the first book of Vitruvius on Architecture:

L. VICTRVVII. POLLIONIS. AD.
CAESAREM. AVGVSTVM. DE.
ARCHITECTVRA. LIBER.
PRIMVS. PRAEPTIO.

Besides the ten books of Vitruvius on Architecture, the volume also contains the wonderful book (*LIBELLUS. MIRABILIS*) of Frontinus on Aqueducts. The typography is charming, the page being a quiet gray without the holes and spots of modern printing. It appears to have been printed from the same font of type as the first edition of the first printed book on Architecture, Alberti's *De Re Aedificatoria*, published in Florence in 1485. The Avery Library

also has a copy of the first edition of Alberti.

Especially important in a library intended to be of assistance to practising architects and youthful students of architecture, as well as to scholars engaged in special research, are current periodicals. Of these the Avery Library receives 147, besides 73 annuals, covering archaeology and art in general besides architecture. It is through the periodicals—French, German, Italian, Flemish, Japanese and Indian as well as British and American—that we keep up with what is being done in other countries. It is in them that one finds the latest competitions, the latest prize drawings, the latest productions of the reigning idols of the ateliers. It is in them that one finds reviewed the latest books, and reported the latest archaeological discoveries and architectural creations and inventions.

Of these periodicals, the more important are represented in the Avery Library by complete sets carefully indexed in detail in the card catalogue. As the numbers come in, they are accessible on open shelves until the volumes are completed. Then they go to the binders, and on their return are indexed and added to the main stack. By themselves, they create a powerful architectural library.

The oldest is Ludwig Förster's *Allgemeine Bauzeitung* of which the Avery Library has a complete set from 1836



THE FRONTISPIECE,
FROM PALLADIO.

to the present. It may give too much attention to the engineering side of architecture, but it is dignified and authoritative and relieves the showy picturesqueness of some of its younger and more ephemeral competitors.

César Daly's *Revue Générale* that was founded in 1840 and flourished until the death of its famous editor in 1894, was certainly the noblest of all architectural periodicals, and a worthy rival of the journals of any art or science. It covers a most interesting period in French architecture—that of Louis Philippe, Napoleon III, the Franco-Prussian War, the early years of the Republic. During this period Paris was transformed into a modern city. The map was entirely made over, and a new set of public monuments was built—the Colonne de Juillet, the Arc de Triomphe de l'Etoile, the Palais de Justice, the Hotel de Ville, etc., etc. Of all these, and of the additions to the Louvre, the *Revue Générale*, supplemented by the *Encyclopédie d'Architecture* (1851-1892) gives excellent, detailed plates.

Whenever there comes an architectural question of unusual delicacy or profundity, of which solution requires unusual scholarship or research, the place to seek the answer is the *Journal of the Royal Institute of British Architects*, that was started in 1850 under the title "Papers Read at the Royal Institute of British Architects." Of this periodical, and of the *Builder*, founded in 1843, the Avery Library has complete sets.

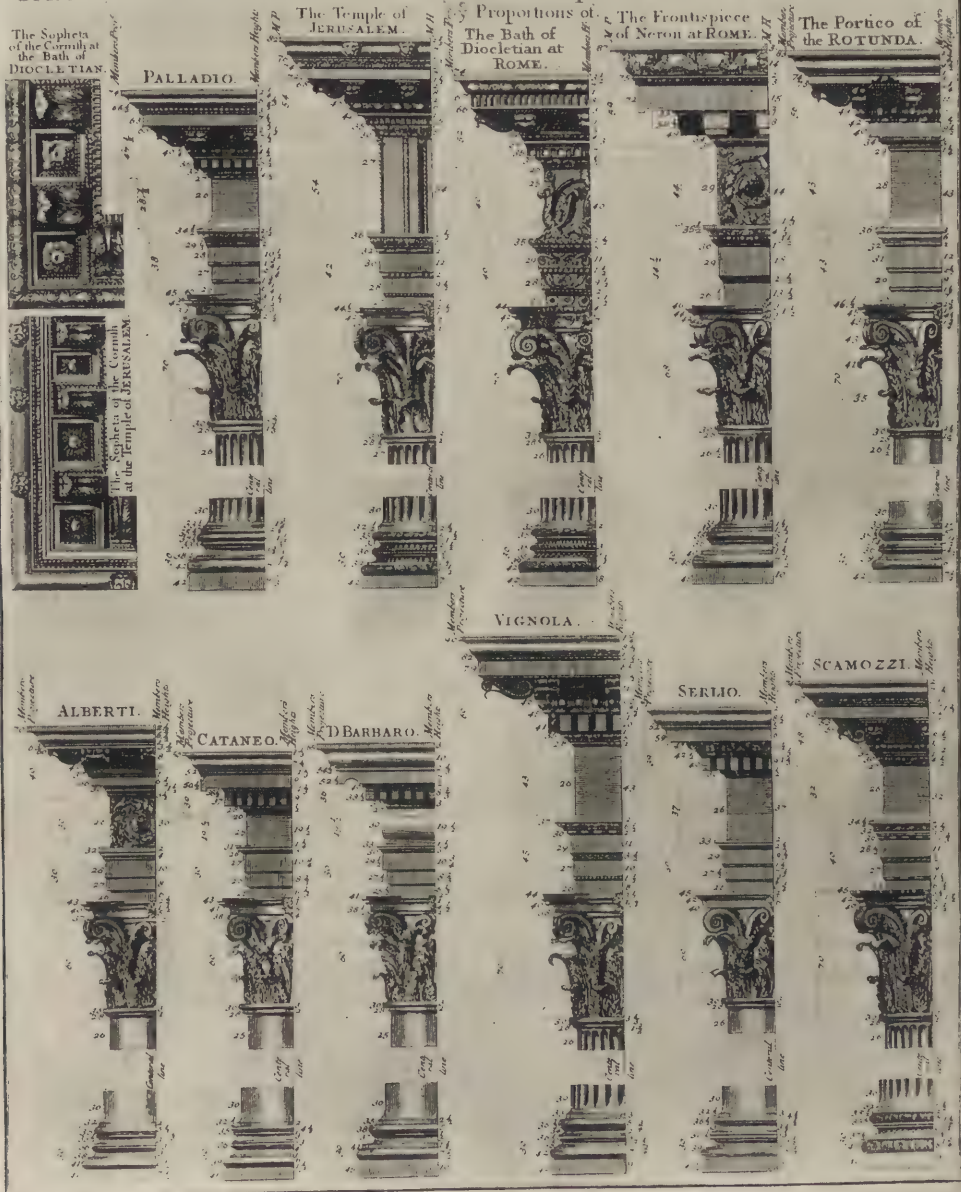
Modeled after the *Builder*, the *American Architect*, in the earlier years from 1876 on, presented nearly every building of importance erected in the country. To its mass of valuable material the analytical cards of the Avery Library furnish a complete index—probably the only one.

Of architectural photographs the Avery Library already has a collection of seven thousand separately mounted, and assembled in loose-leaf portfolios, so that they are easy to consult, and easy to reclassify and rearrange. At present they are arranged by cities, but as the collection increases in size, the collection



LEAF ORNAMENT FROM JEAN LEPAUTRE.

Geometrical Elevations of the *CORINTHIAN* Base, Capitals and Entablatures according to



CORINTHIAN BASES AND CAPITALS, FROM BATTY LANGLEY.



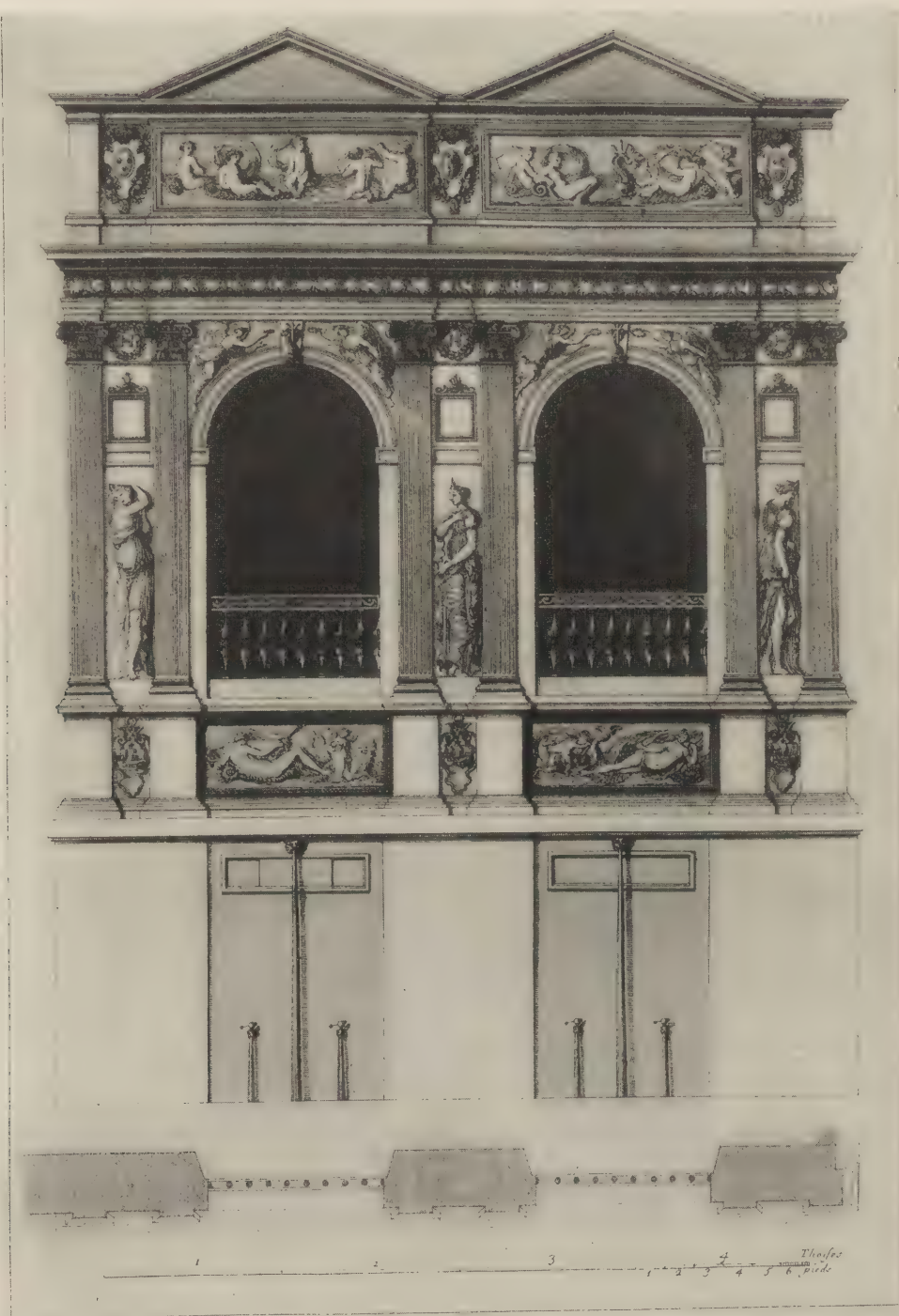
TRIUMPHAL ARCH ERECTED IN HONOR OF LOUIS XIV IN PARIS IN 1670, FROM THE GRAND BLONDEL.

will be subdivided alphabetically by counties. Usually in forming a monumental collection of any kind, the cost has to be considered and provided for out of current funds. In the case of these photographs no financial difficulty stands in the way, for a young American historian of enviable reputation as scholar and writer, has volunteered to supply them as fast as the Library can find room to receive them. The value to the profession of the proposed collection of 100,000 photographs will be incalculable.

The fact that the Library has the School of Architecture of Columbia University closely associated with it, occupying the upper three floors of the new building, is important in considering its resources and the scope of its activities. The school has a collection of 20,000

photographs, mostly 8 x 10, mounted on 14 x 17 cards, arranged in bins geographically by countries, and alphabetically by cities, supplemented by four large cases of photographs arranged by subjects. There are also bins of illustrations taken from books and portfolios, mounted on cards and arranged by subjects. Also, portfolios of periodical illustrations arranged by subjects. The value of the periodical illustrations thus assembled is extraordinary.

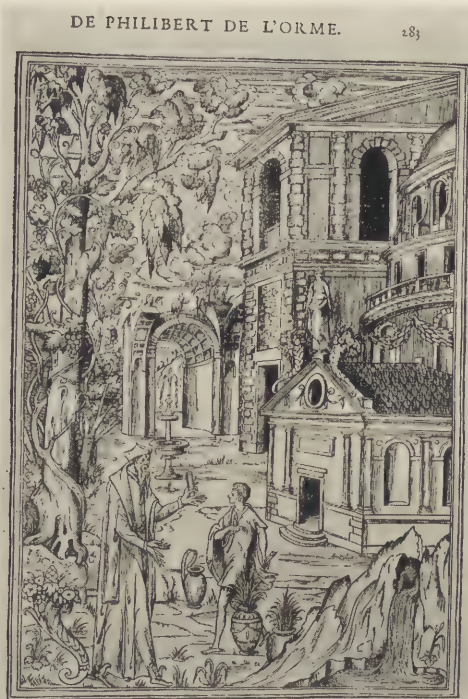
In the near future there is likely to be added to the Avery Library a circulating department, the resources of which will be available to architects in all parts of the United States. Already copies and photographs of plates and drawings and abstracts of text matter may be supplied for a nominal fee that covers merely the



Plan et Elevation de la Façade du côté de la rue aux Fers, de la Fontaine des Saints Innocents à Paris, ornée de sculptures par Jean Goujon.

M. Mariette del.

"FONTAINE DES INNOCENTS,"
BY LESCOT, FROM MARIETTE.



"THE GOOD ARCHITECT," FROM DELORME.

actual cost of the labor of production.

To all persons interested, the Avery Library is open daily—except on Sundays and a few holidays—from 9 a. m. to 6 p. m. Evenings from 7.30 p. m. to 11 p. m. in winter, but during the summer vacation from 7.30 p. m. to 10 p. m.

Besides all the general architectural books, including all dictionaries, manuals and reference works, the Avery Library has important collections of special works on hospitals, schools, bridges, theatres, decoration, stained glass, mural painting, carpets and tapestries, pottery, etc. The collection of books on landscape gardening is second only to the Codman collection in the Boston Public Library. Sculpture and furniture are covered almost as completely as architecture.

Especially rich is the Avery Library in works on city planning. Everything of importance published on the subject is bought. Complete sets of the park reports of American cities are being assembled, and are being supplemented

by similar documents from the great cities of the old world.

As a rule the mighty and multitudinous forces that create the emplacement of a city, outlining its streets and arranging the architecture upon them, work blindly and chaotically. Even when there exists a monumental scheme providing adequately for the future like the one planned for the city of Washington by l'Enfant in consultation with the first president, it is like that of Washington usually neglected by succeeding generations, and revived with difficulty if at all. Yet failure to have and to follow some plan results in monstrosities, and reconstruction becomes necessary at vast expense.

Up to the middle of the nineteenth century, the city of Paris was almost entirely medieval. Splendid plans had been made for its reconstruction in the time of Louis XIV, but little had been done for their execution. Under Louis-Philippe, and more especially under Napoleon III, with the assistance of the great Haussman, the entire body of the city was transformed. The first and best modern city was created. Since then a similar problem has been presented to every city of the modern world, and almost every city of importance is endeavoring to meet it; not as a matter of fancy or choice, but of necessity. Of Paris early and late, and especially of its transformation, the Avery has a better record than any other library outside of the city itself.

When Mr. Avery and Mr. Sturgis began to select the books for the Avery Library in 1892, they kept before them the catalogue of the unrivalled collection of the Royal Institute of British Architects. This catalogue with supplements, and that of the Avery Library, published in 1895, are the two best guides to the classics of architecture. From these works alone, even without the generous assistance of the shelves of the Avery Library, it is possible to acquire an accurate knowledge of the bibliography of the profession.

Of Vitruvius, as I have already said, the Avery Library has thirty-nine editions and translations, among them the

first edition printed in 1486. It also has the *most famous* among the early editions, that of Jocundus, the celebrated architect and engineer who was associated with Raphael in the construction of St. Peter's. This edition, dedicated to Pope Julius II and published in Venice in 1511, was supplied by Jocundus with illustrations "*ut iam legi et intelligi possit*," the original illustrations, referred to in the various manuscripts of which Marini lists forty-three, having disappeared. Of the famous editions edited by Philander, the first of which was published at Rome in 1544, the Avery has the Lyons one of 1586, as well as a volume containing the notes only without the text, published at Paris in 1545. It also has the first edition of Poleni's *Exercitationes Vitruvianae* published at Pavia (1739-41), and the monumental editions of the text of Vitruvius complete with notes published at Utini in Italy (1825-30), and by Marini at Rome in 1836. The former has the notes of Stratico in addition to those of Poleni. The latter has the finest plates ever drawn to illustrate Vitruvius, admirable notes in Latin that present all the manuscript variations, and a complete bibliography of codices, printed texts, and translations. The most convenient small edition of the text alone is that of Rose, published in Leipzig in 1876. With it, is usually bound Nohl's *Index Vitruvianus*.

Of the Italian translations, the Avery has that of Durantino, published in 1524; that of Caporali, published in 1536; that of Barbaro, published in 1556; that of Ruscoli, published in 1590; that of Galiani, published in 1790; that of Orsini, published in 1802, and others. Of the French translations, the Avery has the standard one, published at Paris in 1673 by Claude Perrault, who was the architect of the great colonnade of the Louvre. It is in one volume, 17 x 12 inches, and contains a complete translation of the text with copious notes and illustrations in the text besides plate plates.

Of the English translations the Avery has Newton's, Wilkins's, and Gwilt's. The first, published at London in 1791,



"THE BAD ARCHITECT," FROM DELORME.

in two volumes, with forty-six plates, is the oldest complete translation in English, and has ample commentary. But it is not nearly as attractive to the eye as Wilkins' one-volume translation, published at London in 1812, with forty-one plates nearly as fine as these of the Marini edition. The Wilkins' translation is of those books only that interest the practical architect—the third, fourth, fifth and sixth—and there is no commentary outside of the explanatory text that accompanies each plate. Gwilt's *Architecture of Marcus Vitruvius Pollio in Ten Books*, published in London in 1826, is a quarto volume without commentary and with small plates.

Vitruvius Pollio—there is no ancient authority for the praenomen Marcus—occupies a unique position among writers. He is the only ancient artist whose utterances on matters concerning his own profession have come down to us. His *De Architectura Libri decem* is the only survival from what was a fairly extensive literature on the arts of form, possessed by the Greeks and Romans. From the preface to the seventh book of



ANCIENT ROMAN CANDELABRUM IN MARBLE,
FROM PIRANESI.

The bronze candelabra flanking the entrance to the
Columbia University Library were copied from this.

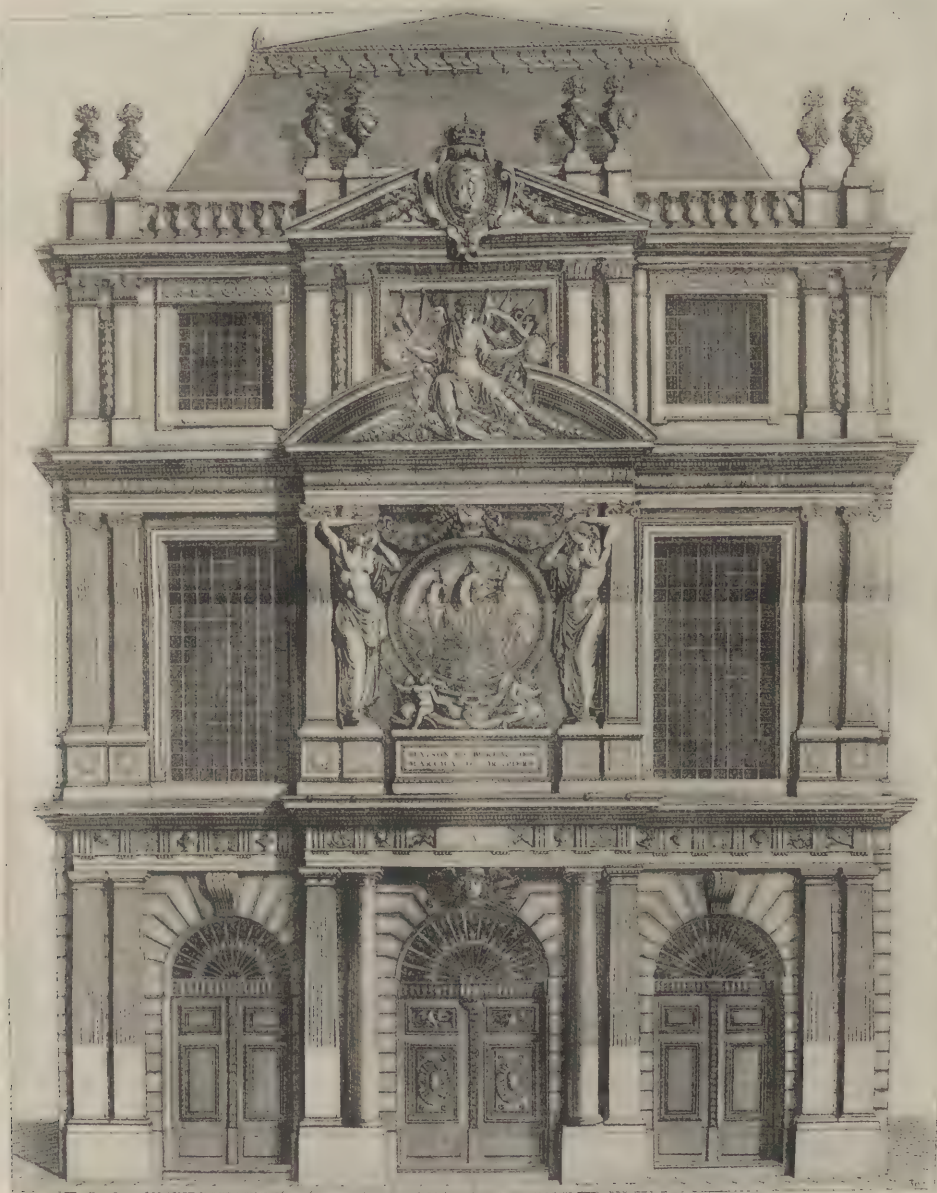
Vitruvius we learn that among Greek architects: Silenus wrote a book on Doric Symmetry; Theodorus described his great Doric temple of Hera at Samos; Chersiphron and Metagenes wrote a treatise on the Ionic temple of Artemis at Ephesus (vividly interesting it would be for us now); Pythius published commentaries on the temple of Athena at Priene; Iktenus and Karpion described the Parthenon at Athens; Philon treated

of the symmetry of sacred buildings, and of the Arsenal of the Peiraeus; Hermogenes described the Ionic temple of Artemis at Magnesia, and the temple of Dionysus at Teos; Satyrus and Phiteus published a work on the Mausoleum at Halicarnassus. All that remains to us of this remarkable architectural library is contained in Vitruvius's own book largely compiled from these sources.

Vitruvius is the connecting link between ancient and modern architecture. He was an architect of the period of the Emperor Augustus, who does not appear to have been particularly successful in practice. The only building of his own mentioned in his book is an unimportant basilica at Fano, an excellent restoration of which was made by Viollet-le-Duc in his *Entretiens sur l'Architecture*. Through the patronage of the Emperor's sister, Vitruvius was appointed to an official position that brought under his authority the balistae, scorpions and catapults of the imperial artillery, and afforded him leisure for his literary pursuits.

About Roman imperial buildings—the theatres, amphitheatres, temples and porticos that for us constitute the great mass of Roman architecture—Vitruvius knew nothing. The Roman works described by him are the comparatively primitive constructions of the republic. The important part of his message to the modern world is concerned with Greek buildings. It was this that caused his book to be regarded as the Bible of architecture for centuries, and which Renaissance architectural writers used as a model, even when they ventured to dissent in details.

It is the fashion in certain architectural quarters to decry authority and precedent. Some practitioners disdain the example not only of their fathers and their grandfathers, but also of the Renaissance and of Ancient Greece and Rome. For such the message of Vitruvius can have but little significance. To others I recommend a perusal of the valuable paper in the *Journal of the Royal Institute of British Architects* for May 18, 1893, entitled *How to Use Vitruvius*, by G. Baldwin Brown, Pro-



"BUREAU DES MARCHANDS,"
FROM THE GRAND BLONDEL.

fessor of Fine Arts at the University of Edinburgh. In this paper, they will find the case for and against Vitruvius stated clearly and fairly.

An indication of the esteem in which Vitruvius' book was held in ancient times is the fact that the elder Pliny in his *Natural History*, published about 77 A. D., quotes whole paragraphs without acknowledgment, and that in the fifth century Sidonius Apollinaris, Bishop of Clermont, in enumerating the men of old, famous in the various spheres of human activity, names Thales and Euclid for science; Socrates, Plato and Aristotle for philosophy; Demosthenes and Cicero for eloquence; Vitruvius for architecture.

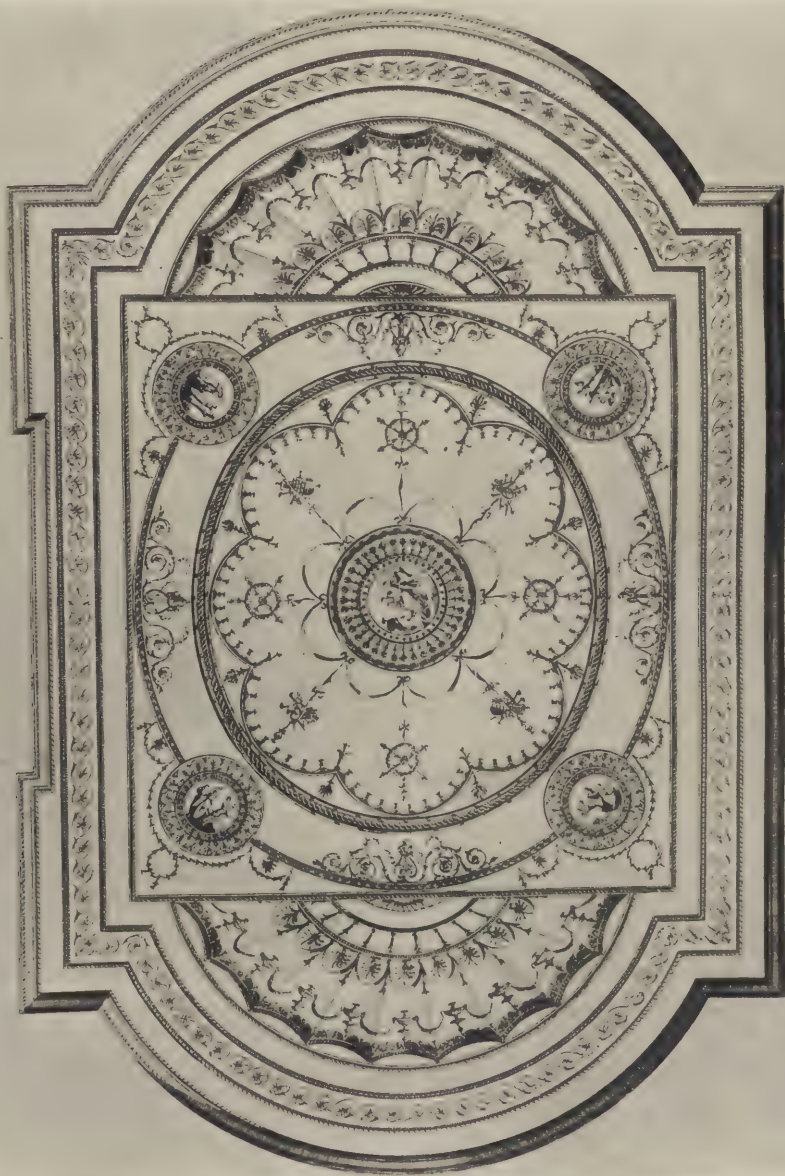
An important sixth century writer was Procopius, appointed in 527 secretary to Justinian's great general Belisarius, and in 562 prefect of Constantinople. His *Ktismata* describes vaguely the construction of Santa Sophia and other buildings in Constantinople. The Avery Library has a modern edition in the original Greek, and also the standard English translation, that of Aubrey Stewart (London, 1886), with notes by Col. Sir C. W. Wilson and Prof. Hayter Lewis.

The only surviving mediaeval architectural book is that of Wilars de Honecourt, one of the leaders in the development of Gothic construction in the thirteenth century, who probably built the choir of the Cambrai Cathedral that was destroyed in the Revolution. His book is now in the French Bibliothèque Nationale, and consists of thirty-three leaves of vellum (forty in the fifteenth century) bearing hasty sketches of architectural plans and details, sculptured figures, and stained glass windows. It was published in fac-simile, with notes by J. B. A. Lassus, in Paris in 1858, and from this was made in London an English edition in 1859, "with many additional articles and notes," by the Rev. Robert Willis. The Avery Library has both the French and English editions. Another mediaeval book of interest to architects, especially the part on stained glass, is the *Schedula Diversarum Artium* of the monk Theophilus, who is

supposed to have lived in the twelfth century. Part I treats of Painting; Part II of Stained Glass, and Part III of Metal Work. The Avery has the edition published in London in 1847 and annotated by Robert Hendrie, with text in Latin and English, and fac-simile of small portions of three of the manuscripts. The Avery has also the annotated edition of the text with German translation by Albert Ilg, printed as volume 7 of the *Quellenschriften zur Kunstgeschichte*, Vienna, 1879.

The first Renaissance book on architecture is the *De Re Aedificatoria* of Leone Battista Alberti (1404-1484) of which, as said above, the Avery has a copy of the first edition printed in 1485; the editions of the Italian translation of Cosimo Bartoli, published in Florence in 1550, in Venice in 1565, in Bologna in 1782, in Milan in 1833; of the French translation of Jean Martin, published in Paris in 1553; the English translation of Giacomo Leoni (together with Bartoli's Italian translation), published in London in 1726. The life of Alberti, by Raphael du Fresne, prefaced to Leoni's translation, shows the esteem in which Alberti was once held. Du Fresne wrote:

"So great was the capacity and so extensive the Genius of our Alberti, that he not only attained a general knowledge of all arts and sciences, but even descended to the particulars of every one of them; and whatever it was that he applied himself to, he could make men fancy that he had never turned his noble disposition to anything else, equaling and even excelling those that were at the top of each profession. In his days the study of Architecture was in a manner lost; or if any notices of it remained, they were so corrupted and so different from the greatness and politeness of the ancient Roman times, that the works produced by them were very mean. Leone Battista Alberti was the first that endeavored to bring back this art to its ancient purity, and that clearing it of the barbarisms of the Gothic ages, restored it to order and proportion, insomuch that he was universally called the Florentine Vitruvius. His fame induced Pope



CEILING OF THE MUSIC ROOM OF SIR
WATKIN WILLIAMS WYNN, FROM ADAM.

Nicholas V to employ him in the ordering of a great many buildings at Rome.

. . . . At the desire of Sigismondo Pandolfo Malatesta, Lord of Rimini, he drew the plan of the Church of St. Francesco, which was begun in the year 1447, and proved one of the most stately and sumptuous in all Italy. . . . In the year 1451 Lodovico Gonzaga, Marquis of Mantua, who had a very great devotion for the Annunziata of Florence, on account of a vow made to her by his spouse, for a happy delivery, built the Choir or High Altar which we now see in that Church, with the arms of the Gonzaga family all round it, according to a design given by Leone Battista. . . . The same Marquis having a mind in his own city to rebuild quite from the foundations, the Church of S. Andrea, venerable on account of the blood of Christ which is preserved in it, in the year 1472 sent for Alberti, and having made him acquainted with his intention to adorn Mantua with a noble and costly Temple, got him to make a model of the new Church which we now see there. . . . But whatever Rome, Rimini, and Mantua owe to the industry and ingenuity of Leone Battista, his Native City (Bologna) is no less obliged to him for contributing not a little to its adorning. The front of the Church of Santa Maria Novella was built under his direction. . . . He gave Cosimo Rucellai the design of the Palace which he built in the street called the Vineyard; and in the Church of S. Pacrazio, is a Chapel of his contrivance."

"Alberti may, with the highest justice, be accorded among the men famous in both these professions (Letters and Design). . . . Sculpture was the first (art) he undertook to treat of, in a little book in Latin entitled *Of Statuary*. He afterwards wrote three books *Of Painting*, in the same language, which are highly commended by all the connoisseurs. . . . The last work, . . . and that which has the most merit in it, as having cost him the most labor and study, is the book which he wrote *Of Architecture*, in which, with exquisite method and great perspicuity, he discovers all the secrets of that art,

which before lay hidden in the obscure writings of Vitruvius."

Of all the manuals of architecture published during the Renaissance period, the one that had the greatest influence and the most lasting vogue was the *Regola delli cinque Ordini d'Architettura*, by Giacomo Barozzio (1507-73), called *Vignola*, after the town where he was born. The Avery has a copy of the first edition published in 1563, the title page of which, 15x10½ inches, is reproduced here, on page 550. Vignola studied painting in Bologna and afterwards went to Rome where he was employed as draftsman by the Vitruvian Society, organized in 1542, to thoroughly study and carefully measure the ancient Roman buildings. Thus Vignola acquired the exact and comprehensive knowledge of ancient architecture that made him the first architect of his period and his book the authoritative reference work. Vignola was the first to differentiate the five classical orders and lay down their proportions with accuracy. The numerous editions and translations of his book treat the original with great freedom, and the name Vignola has come to stand for almost any illustrated manual on the five orders. For instance, Leveil's *Vignole; traité élémentaire pratique d'Architecture* while based on Vignola has all the additions necessary to complete an up-to-date handbook of classic architecture.

In England a name that has had even more fame than Vignola's is that of Andrea Palladio (1518-80), son of Pietro a carpenter, and protégé of a scholar and poet Gian Giorgio Trissino, who on account of Andrea's cleverness named him Palladio, after Pallas Athene goddess of wisdom, and educated him as an architect. It was from Palladio that the great English architect Inigo Jones (1573-1652) sought inspiration and knowledge. His copy of Palladio's *I Quattro Libri dell'Architettura* with manuscript notes is still preserved at Worcester College, Oxford. Of this book the Avery Library has a copy of the first edition published at Venice in 1570, the title page of which is reproduced here, on page 553. There are

many Italian editions and numerous French and English translations. One of the latter has notes by Inigo Jones. The book not only describes and illustrates the five orders, but contains much other matter on construction and general architectural subjects.

The first complete edition of the seven volumes on architecture of Sebastiano Serlio, was published in Venice in Italian in 1584. But previously, beginning with 1537, the different books had been published separately in different cities of France and Italy. Serlio was an Italian born at Bologna, and a pupil of the Sienese painter and architect Baldassare Peruzzi. In 1545 he became *peintre et architecte ordinaire* to the French King Francois I, with residence at Fontainebleau, where he served as consulting architect. His volumes on architecture are based on the drawings he inherited from Peruzzi. Of the early editions the Avery has volumes (*libri*) one and two *mis en langue Francoise par Jehan Martin* and published at Paris in 1545; volume three *translaté d'italien en franchois* and published *par grace et privilege imperiale* at Antwerp in 1550; volume four, dedicated to Mary of Hungary, regent of the Netherlands, and published in French in 1545; volume five, translated by Jean Martin, and published at Paris in 1547; volume six, consisting mostly of plates with text in the original Italian, published at Venice in 1557; volume seven, with text in Italian and Latin, published at Frankfort-on-Main in 1575.

From the copy in the Avery Library of the first edition of Philibert Delorme's *Le premiet tome de l'Architecture*, published at Paris in 1567, we reproduce the two famous pages picturing the Good Architect and the Bad Architect. Delorme (1515-70), the son of a Lyons architect, went to Rome to study and there became in 1534 a protégé of the learned Marcellus Cervinus, who founded the Vitruvian Society mentioned above in the paragraph on Vignola. Returning to France, Delorme was appointed in 1548 *architecte du roi* and *inspecteur des batiments royaux* at Fontainebleau and elsewhere. After the

death of Henri II in 1559, he was succeeded as *inspecteur* by Primaticcio. His chief architectural creation was the Chateau d'Anet, the portal of the main building of which now stands in the court of the Ecole des Beaux Arts at Paris. His designs for the Tuileries begun in 1564 under the personal direction of Catherine de' Medici were executed only in small part, and that small part was remodeled by succeeding architects.

A delightful maker of architectural books was old Jacques Androuet *Du Cerceau* (1515-84). The *cerceau* was the circle that he drew over the door of the shop where he practised his trade of engraver. Two of his sons were architects. The Avery has nearly all of the piquant books of plates published by him.

The reign of Louis XIV (1643-1715) was extremely active architecturally, and a prodigious number of engraved plates were produced of extreme beauty in both design and execution. The leader in this work was Jean Marot (1620-79), assisted by his son Daniel Marot (1661-1718), after whose death the plates were collected into two important books, the *Grand Marot* and the *Petit Marot*, neither of which is yet in the Avery Library. The first of these was published under the title *Architecture Francoise*, by Mariette in 1727, and the latter by Jombert in 1764.

The Marots as engravers were followed by the Mariettes, Jean (1654-1742), and Pierre-Jean (1694-1774). In 1727 the Mariettes published not only the *Grand Marot* but also two volumes of their own *Architecture Francoise*, and in 1738 a third volume. Most of the plates are signed *Mariette excudit*, some *F. Blondel sculp.* There are excellent copies of all three of these volumes in the Avery.

In 1750 Pierre-Jean Mariette turned over his publishing business to Jombert, who in 1752 issued another *Architecture Francoise*, commonly called the *Grand Blondel*. This was the work of Jacques-Francois Blondel, who saved the city of Metz architecturally, reconstructed parts of Strassburg, restoring the cathedral;

and built important monuments in other places. He was also distinguished as a teacher of architecture and in 1734 became *patron* of an atelier under the protection of the Académie d'Architecture, and professor in 1762. His *enseignement* is embodied in the Petit Blondel or *Cours d'Architecture*, published 1771-77. There are copies of both, the Grand and the Petit Blondel in the Avery. In the Grand Blondel the plates of Marot and Mariette reappear usually without signature and sometimes redrawn and reengraved. To these many more are added, and about the entire set is woven a treatise on architecture in general, with commentary on each building illustrated.

The most masterful French decorative artist (ornemaniste) of the seventeenth century was Jean Lepautre (1617-82). We reproduce one of the plates from the first edition of his *Oeuvres d'Architecture* of which the Avery has a copy. Mariette, who collected his plates that were published by Jombert in 1751 says of him that the impetuosity of his invention was so great that he did not even sketch out his multitudinous motives with the pen, but worked directly on the copper.

The finest architectural plates in any library are those of Giovanni Batista Piranesi (1720-1776), published in various volumes under different titles. From the twenty-five volumes of Piranesi plates (some of them by his son) in the Avery Library, we reproduce two that tell eloquently the story of the great architect-engraver's genius. His drawings are the best presentation there is of

the knowledge of ancient Rome available in his day. And after all, while many things have since been more satisfactorily explained the amount of new information added has not been great. Piranesi is so much of an artist that one almost forgets that he is a great scholar and archaeologist. Much of his material he presents in *scenographia*, by which he means not a restoration in the ordinary sense of the word, but the recomposition of existing fragments into complete and inspiring visualizations. Piranesi's work is free and powerful and artistic, but at the same time full of information for the scholar. The Avery also has Luigi Canina's (1793-1850) *Edifici di Roma Antica* that supplements Piranesi rather dully, but with much detail.

Especially helpful to the practising architect of today is the *Works in Architecture of the late Robert and James Adam*, of which the Avery Library has the original edition, published in three volumes 1773-1778, and one posthumously in 1822, containing 125 plates of extraordinary size and exquisite execution, some of them engraved by the great Piranesi. Nearly all of the plates are signed *R. Adam*, a copy of whose valuable *Ruins of the Palace of the Emperor Diocletian at Spalatro in Dalmatia*, published in 1764, is also in the Avery.

Last but not least to those interested in Colonial architecture, is that handbook of ambitious American amateurs and carpenters, Batty Langley's *Practical Geometry applied to the useful arts of Building, Surveying, Gardening and Mensuration*, published in London in 1726.

[The Editor wishes to express his acknowledgment to The Avery Library for courteous assistance in securing the foregoing illustrations.]



DECORATIVE TILE PANEL, FRANKLIN PRESS BUILDING.
George C. Nimmons, Architect.

THE CHICAGO ARCHITECTURAL CLUB

NOTES ON THE 26TH ANNUAL EXHIBITION~

BY ROY A. LIPPINCOTT



THE Chicago Architectural Club opened its 26th annual exhibition in the Galleries of the Art Institute on May 5th. The exhibit this year is much larger and of a far more cosmopolitan character than it has been for a number of years. This is due

to the fact that the eastern architects are better represented than they have been for some time, and both the academic and progressive members of the profession in Chicago and vicinity have contributed more generously than they have for a long time. The club is, therefore, very fortunate in having on the walls an exhibition that is interesting alike to the professional man and the layman.

The exhibit groups itself quite naturally into four main sections. First, a group of large commercial buildings, office buildings, warehouses, printing offices and the like. Second, those projects

of a semi-public, public and monumental character, including the churches, railroad stations and city plans. Third, the residences and country clubs, etc., and, lastly, the students' work from several of the larger schools.

Scattered through the whole exhibit and acting as a leaven to it all are numerous exquisite sketches in pencil and color, mostly of European subjects, and many fascinating designs of a purely decorative character.

The commercial work, practically all of which comes from Chicago offices, includes the Continental and Commercial National Bank, by D. H. Burnham & Company, which commands attention more on account of its size and the number of drawings submitted than by any original features of the design. The building covers an entire city block, and is treated in exactly the same manner as their other works, with which every one is familiar. Marshall and Fox, A. S. Alschuler, Perkins, Fellows and Hamilton, and Jarvis Hunt are all represented by office buildings, the sketches by Per-



A SUGGESTION FOR NORTHWESTERN UNIVERSITY.

Henry Hornbostel, Architect.

kins, Fellows and Hamilton and the drawings by Jarvis Hunt being by far the most original and interesting of them all. Mr. Hunt's building, which is now under construction, bids fair to be the most dignified and altogether satisfactory structure in the city from an architectural point of view.

Many warehouses and mercantile buildings are shown. A building for the Lakeside Press by Howard Shaw attracts immediate attention by virtue of the freshness and picturesque quality of the design, while a tile mosaic and other ex-

terior details in color from the exterior of Mr. George Nimmons' Franklin Press building are full of interest for everyone. A hotel at Madison, Wisconsin by Frank Lloyd Wright and a more informal hotel at Lake Geneva by the same architect are typical of his peculiar genius.

An enumeration of all the works in this group that are worthy of study is quite impossible.

The more monumental works include numerous examples of widely divergent character.

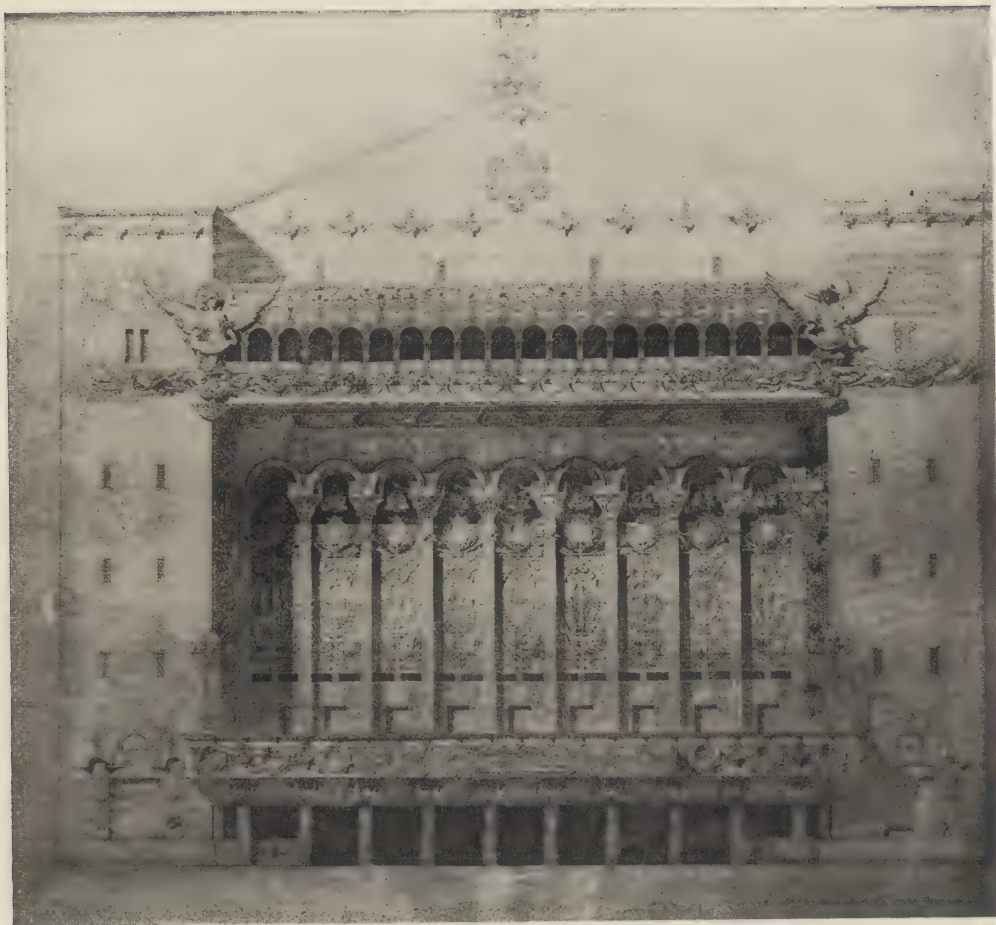


DRAWING FOR THE LAKESIDE PRESS.

Howard Shaw, Architect.



A WATER COLOR SKETCH, BY
CASS GILBERT, ARCHITECT.



SKETCH FOR AUDITORIUM.
Louis Sullivan, Architect.

Messrs. Cram, Goodhue and Ferguson's Cathedral of the Incarnation at Baltimore easily dominates the large gallery in which it is hung.

Mr. Jarvis Hunt's Railroad Station at Kansas City is shown, as are Mr. Bennett's drawings for the many cities for which he has submitted schemes. This latter is a particularly fine exhibit, as the photographs shown are well arranged and afford a splendid chance for comparative study.

The Milwaukee scheme for an outer boulevard by Mr. Clas of that city is also worthy of mention.

In this section are included several educational buildings for universities, city and private schools, and it is in this connection that Chicago suffers by compar-

ison with the work done elsewhere. There is no excuse in this day and age for poor classic design, and those exhibits which come from the Board of Education offices are hopelessly commonplace. In marked contrast to these are some of the buildings for Northwestern University by Mr. Maher—Mr. Hornbostel's sketches for the same institution, and public schools and an arrangement for the University of Nanking by Perkins, Fellows and Hamilton.

Of the many works submitted in the third division, it is difficult to make a choice for special mention: Messrs. Wilson Eyre, Chatten and Hammond, Spencer and Powers, Frank Lloyd Wright, Perkins, Fellows and Hamilton, Purcell, Feick and Emslie, and many others give



THREE PHOTOGRAPHS OF A RESIDENCE
AT EVANSTON, ILL.
Chatten and Hammond, Architects.

us a wealth of material that is more catholic in the many points of view presented than any architectural exhibition that has been held here, and will repay the visitor to the galleries for any time and attention that he may bestow upon it. An especially interesting portion of this section is the collection of original drawings and sketches by Louis Sullivan which have been hung in connection with photographs and details of his later buildings.

The school work is well up to the standard; the Carnegie Institute, University of Illinois, and the Chicago School of Architecture being well represented.

The winning design for the travelling scholarship of the Society of Beaux Arts



MODEL FOR A REAL ESTATE SUB-DIVISION DEVELOPMENT.
Walter Burley Griffin, Architect.



DRAWING FOR THE HOTEL LAKE GENEVA.
Frank Lloyd Wright, Architect.



DRAWING FOR AN OFFICE BUILDING.
Jarvis Hunt, Architect.

Architects is here. Worthy of particular notice is a fine arts building by a member of the Chicago School—it is a problem such as might confront almost any city architect and is handled in a masterly fashion.

Of the other works, Mr. Richard Bock's architectural sculpture attracts instant notice with its decorative and strictly architectural character. Some of the delightful sculptures from the Academy of Rome are shown and numerous sculptured details by many of the local architects.

Mr. Cass Gilbert has sent some of his European sketches which are particularly felicitous in choice of subject, composition and color. In view of Mr. Gilbert's remarkable achievement in adapted Gothic at a monumental scale in the Woolworth Building in New York City, the subject of the sketch reproduced here has a certain timely interest.

It is rather interesting to compare the office building by Jarvis Hunt with the Woolworth building, for apart from height there are enough points of similarity. Mr. Gilbert employed a Gothic, which is at times almost flamboyant, while Mr. Hunt's conception is more nearly that of the "Military Gothic," severe and massive, which Cram, Goodhue and Ferguson used at West Point. And again, Mr. Hunt's design slightly suggests the modern German conception of monumental architecture.

As a whole, the exhibition is well hung, is good in arrangement and color and a decided credit to the jury and hanging committee. The commonplace things are far outnumbered by those of merit and interest and serve to emphasize the progress that is being made year by year.



DRAWING OF A GROUP FOR THE UNIVERSITY OF NANKING, NANKING, CHINA.
Perkins, Fellows and Hamilton, Architects.



DRAWING FOR THE HOTEL MADISON, MADISON, WISCONSIN.
Frank Lloyd Wright, Architect.

WHAT DO WE KNOW ABOUT LIGHTING

A STUDY THEORETICAL, SCIENTIFIC & PRACTICAL
By F. LAURENT GODINEZ, CONSULTING LIGHTING SPECIALIST

Photographs by August Patzig & Son

IV.—ELEMENTS OF THE TECHNIQUE OF LIGHTING (Continued)

NOTE.—In this article the analysis of light re-directing mediums is continued and their characteristics are shown. Interposed throughout the text are photographs of interiors with comment on the use of light therein, as an aid or hindrance to architectural expression. In the next article these principles described will be applied in a forceful discussion of indirect lighting.—EDITOR.

ON OPAQUE REFLECTORS

OPAQUE REFLECTORS, like the translucent shades previously described re-direct light rays by *diffusion* or *reflection* from inner, *rough* or *polished* surfaces, respectively. Being opaque they do not transmit light, through, and above their surfaces. The quantity of light re-directed below, over a certain area, depends upon the nature of the reflecting surface and its shape. On page 375 of the April issue, I explained the effect of rough and polished surfaces in changing the direction of impinging light rays. Fig. 1 indicates how the slope of a reflector's sides will change the distribution of light. Hence, with an "umbrella" shaped reflector (Fig. 1-B) the light is concentrated in a spot below, the diameter of which is roughly half the height of the lamp above the surface illuminated. When a reflector's sides are shaped more as shown in Fig. 1-A, the light rays cross, and a wider distribution obtains, with less light directly beneath the lamp. This applies to polished inner surface reflectors, the variations in distribution between polished and depolished being described on page 377 Fig. 23 (April issue). It is apparent, therefore, that by changing the slope, or curvature of a reflector's sides, wide variations in light distribution can be obtained. I have shown that it is undesirable to use trans-

lucent reflectors with inner polished surfaces, particularly those shaped to give a wide distribution of light (Fig. 1-A) on account of the annoyance caused by their sharply reflected rays of light entering the eye. The characteristic action of polished surfaces, such as table tops, floors, and papers, in reflecting with mirror like fidelity the glaring inner surfaces, of polished reflectors hung above, and the intense ocular discomfort which these distraction factors cause, is a matter of fact recorded by long established practice.

Fortunately leading manufacturers, notably makers of prismatic glass, are doing their best to modify these products to meet physiological requirements, and are offering many attractive and artistic designs in shades, the inner surfaces of which are very rough, and, with tip-frosted tungsten lamps or inverted gas mantle chimneys, are absolutely free from glare.

With opaque reflectors the question of appearance is seldom of any importance, since they are usually concealed from view, or should be, in the various applications of window lighting, and indirect lighting where they are largely used. Of course, opaque reflectors are employed to a considerable extent for industrial lighting, in mills, factories,

and machine shops, but in these applications cleanliness and efficiency count for more than appearance. Aluminum reflectors are generally installed for such applications (in those rare instances where other than bare lamps are used) and to the credit of the manufacturer let it be said, that these are made almost exclusively with rough inner surfaces, giving excellent diffusion, and freedom from glare. In rooms with very high ceilings, where reflectors dangling at the end of long drop cords, interfere with belts and pulleys, or form an extravagant item of wiring expense, opaque reflectors with highly polished inner surfaces, giving an extreme concentration of light, can be, and have been used to considerable advantage. In such instances, the reflectors themselves, being hung so high, offer no distraction factor, and since every ray of light is directed abruptly downward—at any place in an interior so illuminated—the eyebrows of the worker afford natural protection to the eye, as mentioned on page 462, Fig. 12 (May issue). Whether these opaque reflectors are concealed above skylights—to give to an interior the same pleasing effect by night as by day, or used within urns, pedestals or braziers for indirect, or partially-direct lighting, or in display windows, or in the illumination of church windows, or within cornices, or inside massive crys-



Fig. 2. Change effected by substituting reflectors of ordinary blotting paper for shades, which allowed too much light to pass above and below them.

tal spheres, or lanterns, we are most concerned as to the *pemanency* of their reflecting surfaces. It matters not whether we obtain at the start, when they are new, the desired re-direction and intensity of light, if, after many hours use depreciation causes so marked a diminution in the quantity of light distributed, as to greatly impair and detract from the effect. It is of decided interest, therefore, to note the absorption of various materials, and exactly what percentages of light impinging on their surfaces are reflected therefrom.

Highly polished silver reflects .92% of the incident light; mirrors silvered on surface .70% to .85%; white blotting paper, .82%. From this it is evident that pure silver is the best reflecting surface obtainable, from a theoretical viewpoint. Pure silver is, of course, expensive, it also oxidizes and tarnishes, as all possessors of that metal in the form of table ware can feelingly testify. Hence its use in the form of reflectors is restricted to laboratory applications where the usual inhuman precautions are taken to eliminate foreign matter, dirt, and all other factors of depreciation, which are invariably associated with the stern realities of actual practical working conditions. Even if thin forms of silver, so light in weight as to be inexpensive, could be moulded commercially in reflector form, the blackening and tarnishing of the metal would prohibit their

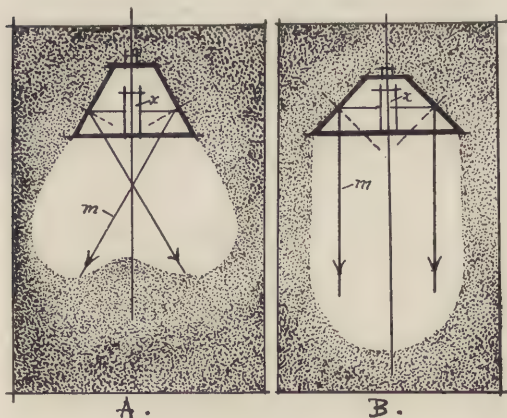


Figure 22.

- (A) Distribution of light from reflector in which reflected rays are crossed.
 (B) Distribution of light from reflector in which the incident rays are reflected directly downward.

use under conditions where soap and water, much less alcohol, or special cleansing and polishing compounds are unknown quantities. Manufacturers have overcome this difficulty by depositing pure metallic silver on the back of a thin glass mould, formed so as to give the proper re-direction to reflected light rays. Upon this coating of silver is placed a second coating of enamel, which is subjected to an extremely high temperature, making it impervious to variations in heat or cold. In other words, the metallic silver is snugly enclosed between a protecting film of glass on the inside, and a protecting film of enamel on the outside. I have personally tested reflectors made in this way, which have been in use continually for periods of over ten years, and there was absolutely no deterioration in their reflective power, or in the brightness of the silver surface. When metallic silver is properly deposited on the surface of a glass, it forms an elastic film, which expands and contracts without breaking. This quality prevents variations in temperature from cracking or splitting the silver, a condition which is foreign to reflectors formed by depositing quicksilver on the back of glass, very much as mirrors are made. This is done by forming a glass mould of "blown" or "dropped" glass, having the proper curvature, and depositing the quicksilver as a backing, upon it. Enamel is then applied as a protective coating, but it cannot be baked on at high temperatures, since the quicksilver, unlike the pure metal, is inelastic and would disintegrate and crack. Other quick-silver reflectors are made by placing pyramid shaped sections of quicksilver coated glass within a tin cone. In such instances the friction caused by the contact of the adjacent edges, results in a "chipping" of the quick-silver backing which soon spreads, leaving an exposed yellow surface of the enamel, which is at best a poor reflector of light. Were it not for this all-important question of depreciation, one might use blotting paper with its high reflective power, shaped in reflector form over lamps. Given two new reflectors of the same shape—one with a quick-silver backing, and the other

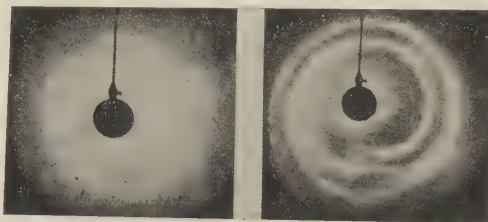
with a pure silver—and so far as the eye is concerned there is little, if any difference in intensity of light reflected. Repeat the test after an extended period of continued use, and you will find the depreciation of the quick-silvered reflector has greatly affected its reflecting power. Look into the display windows and note this effect of depreciation, which is plainly marked wherever reflectors with quick-silver backing have been in use for some time. Without depreciation we might use blotting paper reflectors to considerable advantage. The function of the opaque reflector is to direct light below. The problem is to determine where light is required, and then to direct it at that point. For example, in display windows, merchandise is displayed on the floor, not on the ceiling—hence a translucent shade which allows half of the useful light to be wasted in lighting the ceiling, is unsuited for *display* lighting. Fig. 2 shows a view of two windows (both on the same plate incidentally) the same number of lamps are in each window, hanging pendant, from the ceiling above the window skylight. The darkest window is lighted by six opal shades, as described in the May issue, which allow nearly as much light to be transmitted *through* and *above* them, as is reflected *down* below. In the brightest window strips of ordinary white blotting paper were pinned together in conical form, and hung over the lamps (displacing the opal shades). The contrast is striking. When one considers that eight windows out of every ten, are so crudely mislighted, the unrealized possibilities of lighting become apparent, at least in one relation. So many a merchant who selected his window lighting equipment because he saw such shades in some bowling alley, fails to get the equivalent in light, of the energy he is paying for in the form of "kilowatt hours" or "cubic feet of gas", with real money, when common blotting paper would do the trick, with just as remarkable a transformation as is apparent in Fig. 2.

To be sure, blotting paper will collect dirt, and hence depreciate, yet, the fact remains that it absorbs *ink* more readily

than *light*. It is mentioned, not because one should regard it as a formidable competitor for substantial "ready made" reflectors, but rather for its peculiar flexibility in lending itself gracefully to any experimental demonstration. It is always available, and in planning lighting modifications, it assists materially in determining exactly what the effect of the change will be to the eye—a consummation most devoutly to be wished, and one which cannot be always reached by the mathematical route of pure theory. Cove lighting, as it is often done, is ugly and ineffective—such examples may usually be found in the offices of lighting companies, sometimes being so bad that executives, whose desks face an adjacent side wall, are obliged to turn out the lights in the cove thereon to avoid the reflected directional effect, which is such that rays striking the ceiling near, and above the cove, are reflected directly into the eye of the unfortunate victim at the desk at such an angle that even the wide brim of a picture hat (leaving the eye-brow entirely out of the question) could afford no protection. Again, in the display rooms of lighting companies, old cove lighting, is joyfully proclaimed by little splotches or *eruptions* of light above the lamps, defacing the otherwise fair complexion of the wall. The illuminating engineer seems unable to supply the necessary curative ointment, wasting much valuable time, effort, and brain power in placing innumerable squares of ground or opal glass above the offending lamps, which intensifies or subdues the "eruptions," more or less, but adds insult to injury by casting a series of bright lines much akin to a picket fence, "*en miniature*," where the light escapes between the imperfect junction of the plates. Blotting paper placed over the lamps, shaped so as to direct some light in the dark sections of the wall, with pyramid shaped pieces of the same material between adjacent lamp tips and sockets, with a little ingenuity thrown in, does the trick. The experiment can be confined to the "reaching" limitations of a step ladder and the effect noted—the thing can then be made permanent by designing corresponding

equipment made of indestructible metal—aluminum preferred—or if space will permit in new installations the introduction of miniature opaque silvered reflectors with small low voltage lamps on a transformer.

Whenever smooth polished surfaces are used in reflectors, the question of streaks or striations must be considered. In the



A.

B.

Figure 20.

(A) Effect of light from aluminum reflector with depolished surface.

(B) Effect of light from same with polished surface.

two photographs above A shows the even diffusion of light on a surface from an opaque metal reflector depolished on the inside, while B reveals the streaks caused by using an opaque reflector interiorly polished. The mountainous ridges and dark circular depressions are caused by the position of the lamp filament, or light radiating surface, referred to the curvature of the polished inner surface, and in addition there are myriads of streaks in the form of sharp bright lines quite visible to the eye, but undisclosed by the camera. When vibratory disturbances cause such reflectors hanging from drop cords, or rigidly suspended from fixed supports, to shake violently, the resultant fluctuations of light on the working surface, are not only ruinous to the eye but also conducive to mental fatigue, or even accidents as well. These bright lines are nothing but reflected, mirror-like, images of the bright light-giving wires constituting the filament of the lamp, and I have explained how "frosting" or treating the bulb of a tungsten lamp with acid gives a diffusion which eliminates these lines to a great extent. There are instances, however, where frosting the entire bulb is undesirable, owing to the attraction which the roughened surface offers to stray particles of



Fig. 3. Distribution of light below metallic-silvered opaque reflector, with 40 and 60-watt tungsten lamp.

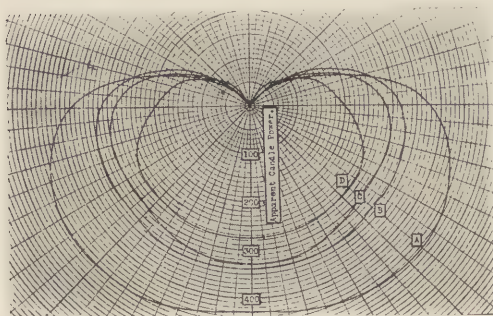


Fig. 4. Laboratory tests of three lamps of the same kind, showing discrepancies in three laboratory tests.

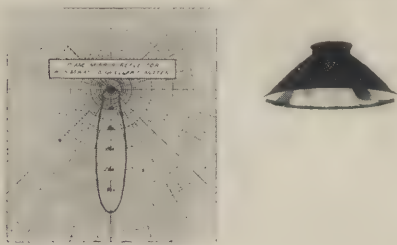


Fig. 5. How light is distributed below a quick-silvered sectional cove mirror reflector (new).

dirt, together with the loss of useful light where it is most needed to be of value from a reflecting surface—i. e., on the horizontal. With gas mantles, upright or inverted, these streaks are not in evidence owing to the absence of individual lines of high intrinsic brilliancy, and owing to the uniform luminosity of the mantle from all points. To overcome this condition, manufacturers of opaque reflectors have ingeniously

formed the inner glass surface of their reflectors in a series of ridges, or spatulated circular indentations, which by virtue of their variously inclined surfaces slightly break up the reflected light rays and dispell these images without causing any material change in the effective distribution of the reflector. Fig. 3 shows the distribution of light about a metallic-silvered reflector with a 40 watt and a 60 watt tungsten lamp. The more concentrating curve of the smaller lamp is due to the fact that it lies well up within the reflecting surface, and consequently every ray of light is re-directed downward, as shown in Fig. 1-B. These distributions of light about reflectors are of interest to the architect, only because they indicate within limits of reasonable exactness *how* the light is re-directed, that is, how much goes above the horizontal, how much below, and where it is concentrated. Of course, one familiar with reflector design can tell by inspection just how a reflecting surface will modify the distribution of light from a given source by its shape, but to do this takes practice and plenty of it. The candle power value on these distribution curves is of no significance, unless they bear the mark of the Electrical Testing Laboratories. Filament position of lamps are changing continually, and with each change there is a corresponding change for better or worse in the distribution of light from reflectors of a fixed shape, or obsolete design. As an example of this regard Fig. 4. The widely varying distributions depicted, were obtained from three lamps (3 mantle inverted gas arcs) and represent the different versions of three laboratories. This is quite significant. Fig. 5 shows the extreme concentrating effect obtained with a quick-silvered sectional mirror reflector, and a small tungsten lamp when new. Fig. 6 represents a metallic-silvered reflector designed for window lighting, and is of interest because it indicates clearly how changing the shape of a reflector can produce any desired distribution of light. This is further emphasized in Fig. 7, being a reflector of the same class, but shaped so as to direct more light up-

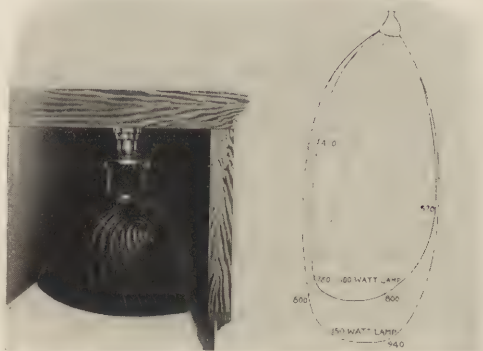


Fig. 6. Unsymmetrical distribution of light below metal-silvered reflector with two lamps, showing the relation of reflector shape to distribution of light.



Fig. 8. How light is distributed below an ordinary metal reflector with white enamel interior, and lamp of the relative proportion shown.

wards. Fig. 8 shows the distribution of light from a plain metal reflector with a white enamel inner surface, which is of a rather non permanent nature. The distribution is characteristic for its shape and a lamp of the relative size shown. Fig. 9 shows a distribution of light which is very desirable for applications of cove lighting, where sloping ceilings are encountered. Two lamps are placed in the reflector, which is of the metallic-silvered type. To illustrate graphically the comparative light re-directing properties of opaque reflectors and translucent ones, tests made under exactly similar conditions show the following: On the basis of 100% as maxi-

mum efficiency, the metallic-silvered reflector gave 100%. A trough reflector of paneled glass with quick-silver backing 45%, and a prismatic reflector of a concentrating type 75%; the latter being at a disadvantage, since fully 30% of the useful light from the lamps was transmitted upwards, through the interstices and vertices of the prisms. These figures are absolutely accurate and show the correlation existing between the different types enumerated under practical working conditions before depreciation exerted its baneful influence. This would affect the prismatic shade only by the deposition of dirt, the quick-silvered reflector suffering most.

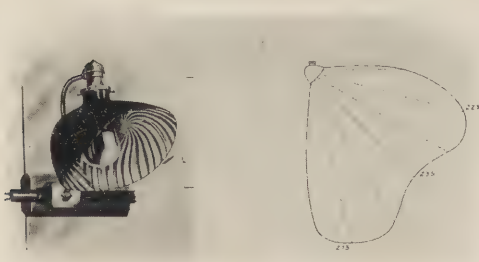


Fig. 7. Further change in distribution of light caused by building out reflector top.

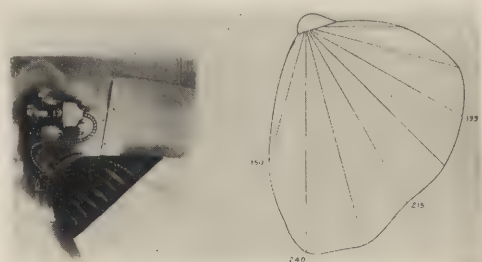
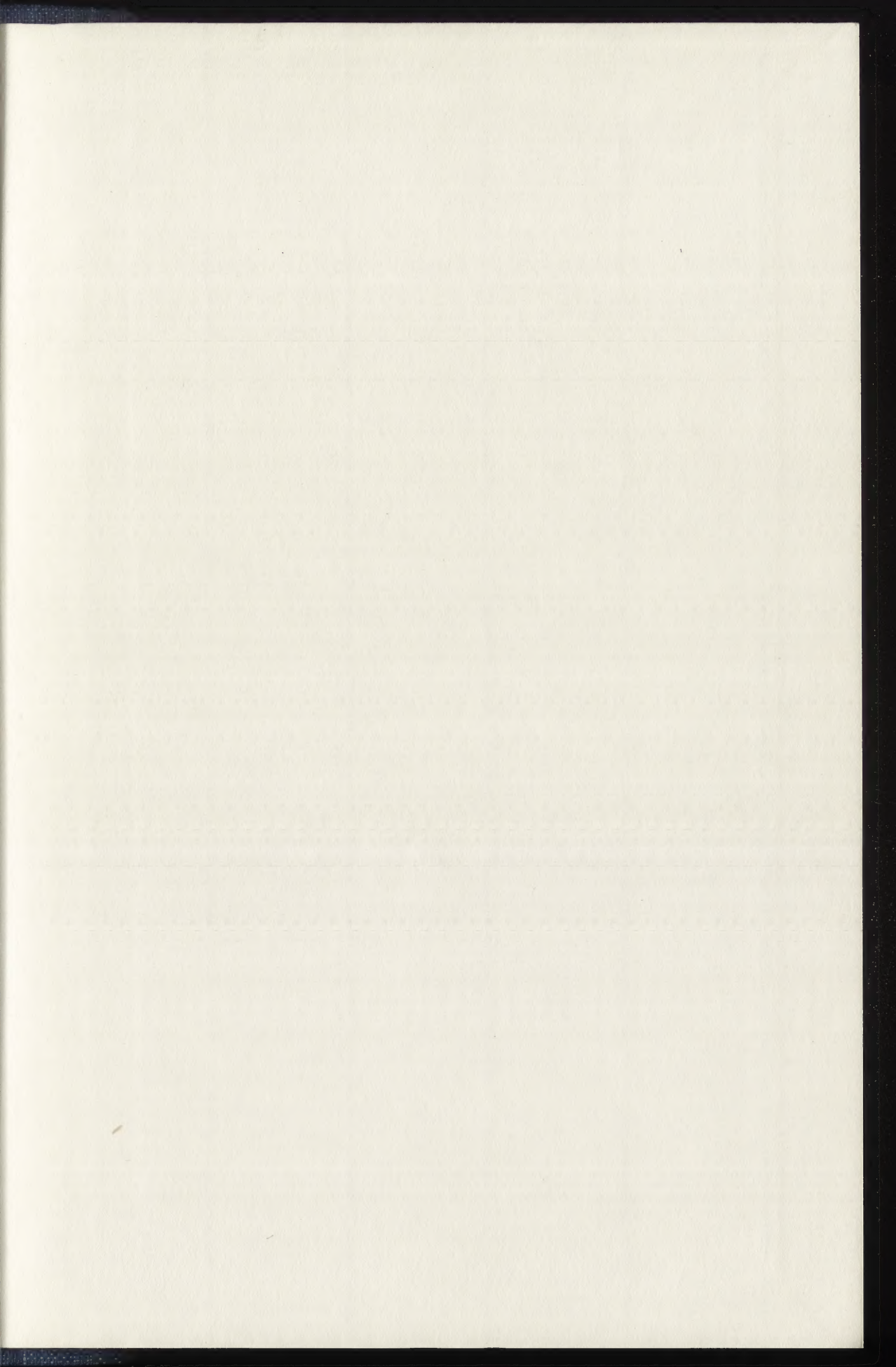


Fig. 9. Desirable distribution of light for certain applications of cove lighting obtained from metallic-silvered reflector with two lamps in twin sockets.



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